Kawasaki KX250F

KX450F



KX FI Calibration Kit Instruction Manual

Table of Contents

Table of Contents	
Foreword	2
Warranty Terms	2
About this Instruction Manual	3
Safety precautions	4
Overview of this kit	
Function	
Optimum engine settingApplicable models	5
Prior to use	6
Items contained in this Kit	6
Part names of FI Calibration Controller	9
Names and functions of the FI Calibration Controller screens	10
Setup of FI Calibration Controller	13
Date and time setting	13
Changing display unitViewing the system information	
Specifications	
Precautions for use	
Troubleshooting	
Preparation	
Installing the calibration kit connecting sub-harness	
To obtain optimum engine control setting	
ON Line mode	
Adjustment of fuel injection amount	
Adjustment of ignition timing	
Mapping point setting	
Saving the setting data Deleting the saved setting data	46 51
Data Monitor	
Resetting ECU	
OFF Line mode	
Adjustment of fuel injection amount	
Adjustment of ignition timing	
Mapping point setting	64
Saving the setting data	68
Data management	74
Outline of storage locations of the setting data files	
Storage location of the setting data	
Back-up data	76

Foreword

Congratulations on your choosing KX FI Calibration Kit.

This document describes the outline and basic operation of the KX FI Calibration Kit. Read this document carefully and understand the performance and functions of this KX FI Calibration Kit for optimum use of this kit

Warranty Terms

The KX series motorcycles are sold as competition racing machines and as such there is no manufacturer's warranty expressed or implied.

You should also be aware that any abnormalities that arise due to the use of the KX FI Calibration Kit are not warranted.

- The loss of data due to the failure of hardware, malfunction or any other reason under the environment where the KX FI Calibration Kit is used will not be covered by the Warranty. We recommend you to back-up the data which is important for you.
- The KX FI Calibration Kit will not guarantee that this kit will fit for a user's specific purpose.
- The warranty will become void if the KX FI Calibration Kit is disassembled.
- The failure caused by the use of the AC adapter, cable, etc. not specified for use with the KX FI Calibration Kit is out of warranty.
- The failure caused by the use of the KX FI Calibration Kit for any purpose not described in this instruction manual is out of warranty.

About this Instruction Manual

- For the motorcycle service information not covered by this document, refer to KX450F Service Manual (99925-1243-01 to -03, 99925-1256-01 to -04, or 99925-1271-01) or KX250F Service Manual (99925-1251-01 to -02, or 99925-1259-01 to -04).
- This document is intended for personnel who have the basic knowledge of Windows and therefore does not contain the explanations of the general terms and operations of the Windows.
- No parts of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic mechanical photocopying, recording or otherwise, without the prior written permission of Motorcycle & Engine Company, Kawasaki Heavy Industries, Ltd.
- All information contained in this document is based on the latest product information available at the time of publication.
- The specifications and design of the product and the contents of the service manual and this document may be subject to change for product improvement without prior notice.
- In this document, the following three symbols are used to distinguish the types of description.
 - •: Indicates a procedural step or work to be done.
 - O: Indicates a procedural sub-step or how to do the work of the procedural step it follows. It also precedes the text of a NOTE.
 - ★: Indicates a conditional step or what action to take based on the results of the test or inspection in the procedural step or sub-step it follows.
- This document used the following warning and caution symbols to assure the safety of your inspection and maintenance services.

AWARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

NOTE

- O NOTE indicates information that may help or guide you in the proper operation or service of the motorcycle.
- Windows Vista, Windows 7, Windows 8 and Windows 8.1 are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Safety precautions

- O Exhaust gas is toxic. Never operate the engine in a closed or poorly-ventilated space for a long time.
- O The exhaust pipe and engine are hot while operating the engine or just after stopping it. Keep your hands, body and clothes away from them so as not to get burnt.
- O Fuel is highly flammable and can be explosive under certain conditions. Always stop the engine and keep away the source of ignition when handling the fuel or refueling. This includes any appliance with a pilot light. If too much fuel is filled in the fuel tank, it may expand during running and may flow out through the breather hose on the tank cap.
 - Close the tank cap securely.
 - If the fuel spills, wipe it off completely with shop towel.
- O While servicing, be careful that your hands, clothes, or tool not to contact or be caught by wheels, drive chain, sprockets, or other rotating or moving parts.

Overview of this kit

This KX FI Calibration Kit enables you to adjust the fuel injection amount and ignition timing by connecting this to the vehicle's ECU (electronic control unit).

By repeating the change of setting, you may obtain the optimum engine setting fit for the course, weather and rider's performance.

Function

Using this KX FI Calibration Kit, you can adjust the engine setting optimum for the course, weather and rider's performance.



Optimum engine setting

You can change the engine setting easily using the preset setting data.

You can also create your custom data by finely adjusting the fuel injection amount and ignition timing. This custom data can be stored in the Calibration Kit. By selecting and applying a suitable data in your custom data list, you can cope with various riding situations.

Applicable models

Applicable models				
Common nome	Year	Model Require addit Sub-harness	Require additional options	
Common name	Teal		Sub-harness	Bracket
	2011	KX250YB	26011-0315	11056-0587
	2012	KX250YC	26011-0315	11056-1657
KX250F	2013	KX250ZD	26011-0933	11056-0505
KAZ50F	2014	KX250ZE	26011-0933	11056-0505
	2015	KX250ZF	26011-0933	11056-0505
	2016	KX250ZG	26011-0933	11056-0505
	2009	KX450E9	26011-0933	11056-0505
	2010	KX450EA	26011-0933	11056-0505
	2011	KX450EB	26011-0315	11056-0597
LV4E0E	2012	KX450FC	26011-0933	11056-0505
KX450F	2013	KX450FD	26011-0933	11056-0505
	2014	KX450FE	26011-0933	11056-0505
	2015	KX450FF	26011-0933	11056-0505
	2016	KX450HG	26011-0933	11056-0505

Prior to use

This section contains the information you should know prior to use the KX FI Calibration Kit.

Items contained in this Kit.

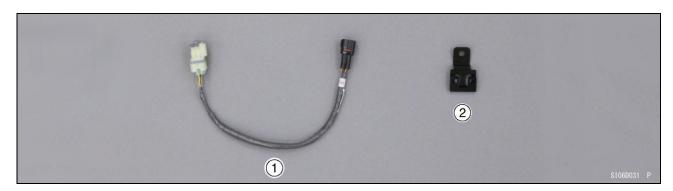
Items contained in the KX FI Calibration Kit

No.	Part name		Remarks
1	FI Calibration Controller	1	
2	SD Memory Card	1	2GB
3	Carrying Box	1	
4	4 Controller Transfer Cable		P/No. 26011-0940
5	5 Vehicle Transfer Cable		P/No. 26011-0941
6	AC Adapter (Other than EU [A], EU [B])	1	P/No. 41077-0726 (Other than EU) [A] P/No. 41077-0727 (EU) [B]
7	CD-ROM (Contains Instruction Manual, Quick Reference Sheet, Back-up Data of SD Memory Card)	1	P/No. 41080-0665
8	Quick Reference Sheet	1	



Optional parts

No.	Part name	
1	Calibration kit connecting sub-harness	
2	Diagnosis connector bracket	



Part names of FI Calibration Controller

Display [A]

Up Button [B]

Left Button [C]

OK Button (Power Button) [D]

Right Button [E]

Down Button [F]

Cancel Button [G]

F1 Button [H]

F2 Button [I]

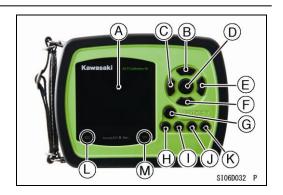
F3 Button [J]

F4 Button [K]

Red Battery Charging Indicator [L]

Orange Communication indicator [M]

Controller Transfer Cable Connector [A]

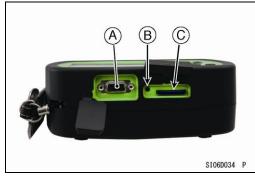




USB Hi-Speed Cable Connector [A] Reset Button [B] SD Memory Card [C]

NOTE

 $\ensuremath{\bigcirc}$ Do not use the USB hi-speed cable connector.



FI Calibration Controller Battery Charging Connector [A]



Names and functions of the FI Calibration Controller screens

This section explains the names and functions of the screens of the FI Calibration Controller.

Turning on the Controller

- To turn on the FI Calibration Controller, press the OK button for 2 seconds or longer.
- To turn off, press the OK button for 2 seconds or longer.

NOTE

- O Be sure to charge the battery of the Controller sufficiently before use.
- O If the battery runs down during operation, data is not updated.



Major functions

- Pressing the OK button displays the mode selection screen.
- There are three modes in the FI Calibration Controller.

OFF Line	For editing the setting data without connecting the
	Controller to the motorcycle.
ON Line	For operation with the Controller connected to the motorcycle - editing of setting data and writing the setting in ECU.
Setup	For adjusting clock, changing unit of display, and viewing system information.
	viewing system information.

- Each mode can be selected by pressing F1, F2 or F3 button.
- The date, time and battery remaining power are displayed at the top right of the display.

F1 OFF Line F2 ON Line F3 Setup

Examples of typical operations

Rewriting of ECU data using a preset setting data (On Line mode: With the Controller connected to the motorcycle). The following can be performed.

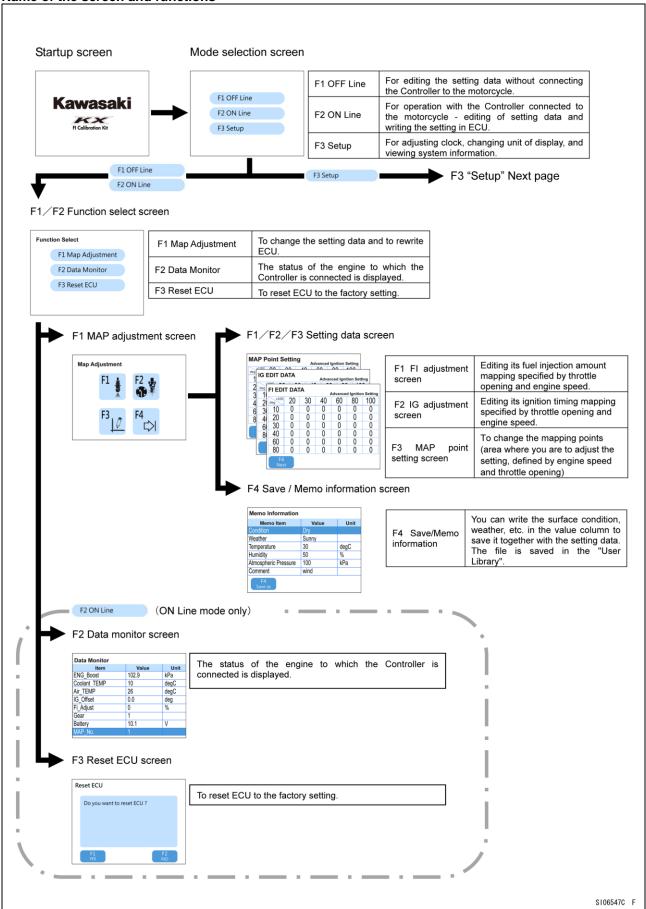
- To rewrite the fuel injection amount setting
- To rewrite the ignition timing setting
- To change the mapping points (area where you are to adjust the setting, defined by engine speed and throttle opening)
- To save the setting data in file format.

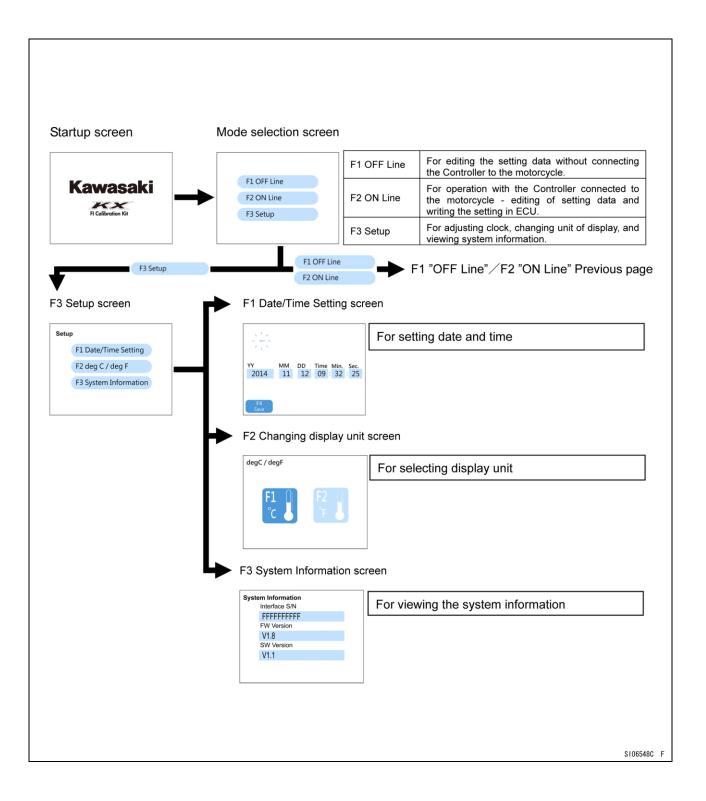
Preparing setting data in advance (Off Line mode: With the Controller not connected to the motorcycle). The following can be performed.

- To change the fuel injection amount setting.
- To change the ignition timing setting.
- To change the mapping points (area where you are to adjust the setting, defined by engine speed and throttle opening)
- To save the setting data in a file.

Viewing the current engine condition (On Line mode)
Resetting ECU to the factory setting (On Line mode)

Name of the screen and functions

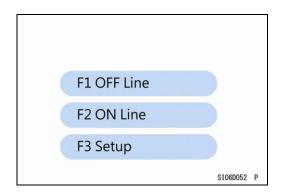




Setup of FI Calibration Controller

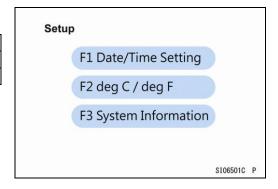
The setup function is used to change the date and time, and displayed units. It is also used to view the system information.

• Press the F3 button at the mode selection screen.



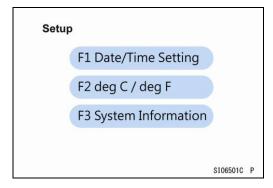
• At the Setup screen, press the F1, F2 or F3 button to select the setting item.

Date/Time Setting	For setting date and time
deg C/deg F	For selecting display unit
System Information	For viewing the system information

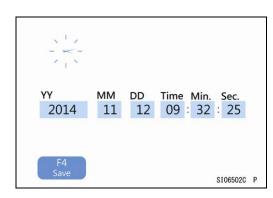


Date and time setting

• Press the F1 button at the setup screen.

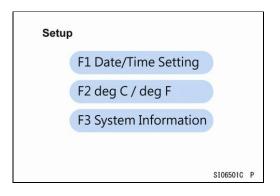


- Move the cursor using left or right button and select the item to be changed by pressing the OK button.
- Change the figure using the up or down button and press the OK button to confirm it.
- After setting, press the F4 button to apply the setting.
- O The display returns to the Setup screen.

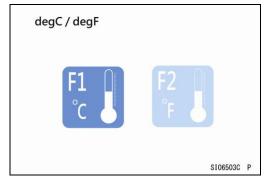


Changing display unit

• Press the F2 button at the setup screen.

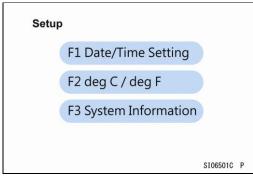


- Press the F1 button to select the celcius (°C) unit, or press the F2 button to select the fahrenheit (°F) unit.
- After changing the unit, pressing the Cancel button returns the display to the Setup screen.



Viewing the system information

• Press the F3 button at the setup screen.

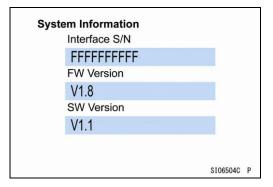


The system information is displayed.

The eyetern intermation to display out		
Interface S/N	Serial number of the Controller	
FW Version	Version of firmware	
SW Version	Version of data in the SD memory card	

NOTE

- O The serial number is also indicated at the back of the Controller.
- Pressing the Cancel button returns the display to the setup screen.



Specifications

FI Calibration Controller

Dimension	L: 173.78 mm (6.8417 in.)
	W: 134.66 mm (5.3016 in.)
	H: 60.91 mm (2.3980 in.)
AC Adapter	Input: 100 ~ 240V, Output: DC 18V
Operating Voltage	DC 8 ~ 18 V
Operating Current	300 mA
Operating Temperature	0°C ~ 70°C (32 ~ 158 °F)
Dust and Water	IP55
Resistance	

- The red battery charging indicator illuminates while charging the battery in the Controller.
- The remaining battery power is indicated on the display: 100 -45%: Green; 44 - 30%: Yellow; 29% or lower: Red
- When the remaining battery power lowers below 20%, buzzer sounds for 5 seconds. When it lowers to 10% and 5%, buzzer sounds for 10 seconds respectively.
- The Controller automatically shuts down if not operated for 5 minutes.
- The orange communication indicator illuminates when the Controller is connected to the motorcycle.
- The waterproof performance of the Controller is water-resistant for daily ordinary use (with caps are closed securely).

Personal computer

A personal computer is used to view the instruction manual and the quick reference sheet data, and to copy the back-up data into the SD memory card.

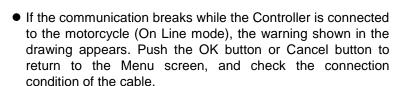
Item	Details
OS	Windows 8.1/8/7/Vista
Others	CD-ROM drive: Required to view the instruction manual and quick reference sheet. Also required to copy the back-up data to the SD memory card. SD memory card reader: Required to copy the back-up data from the CD-ROM. Adobe Reader: Required to view PDF files (instruction manual and quick reference sheet).

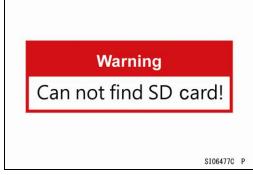
Precautions for use

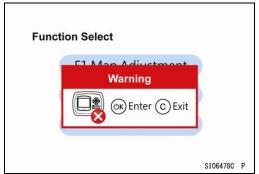
- Do not connect the FI Calibration Controller to the motorcycle during charging the Controller.
- Do not remove the SD memory card while operating the Controller.
- Use the SD memory card 2 GB or lower in size. (Do not use the SDHC, SDXC or UHS memory card.)
- Up to 200 settings can be stored in a SD memory card. If the number of settings exceeds 200, the oldest setting will be deleted when a new (201th) setting is saved. Therefore, copy the data in a personal computer as necessary.
- If the capacitor is faulty or capacitor connector is disconnected, the On Line mode adjustment cannot be performed. Replace the capacitor or reconnect the connector. (Refer to Service Manual.)
- If the charge warning buzzer sounds, charge the Controller in the earliest opportunity. (The buzzer sounds when the battery remaining power becomes 20%, 10% and 5%.)
- Be sure to use the AC adapter included in the kit.
- Never disassemble the FI Calibration Controller.
- Do not drop the FI Calibration Controller.
- Keep the FI Calibration Controller away from water.

Troubleshooting

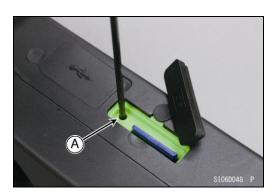
 If the warning shown in the drawing appears on the display, remove and reinsert the SD memory card, then push the reset button to reboot.







 If the Controller freezes and would not accept any operation, push the reset button [A] with a thin rod to reboot.



Preparation

It is necessary to install the calibration kit connecting sub-harness to the motorcycle before using the KX FI Calibration Kit.

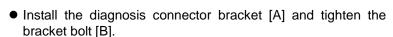
Installing the calibration kit connecting sub-harness

To use the KX FI Calibration Kit, installation of some optional parts of the motorcycle listed in the table on page 5 are required. Be sure to prepare these parts.

KX450F (2016 model)

- Remove:
 Band [B] of the number plate [A]

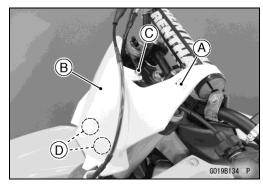
 Number plate bolt [C]
- Clear the number plate from the projections [D] on the steering stem base.
- Remove: Bracket bolt [A] Bracket [B]
- Remove the Kawasaki diagnostic system connector [C] from the bracket.

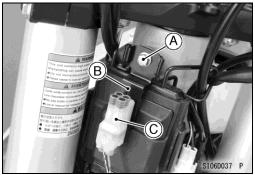


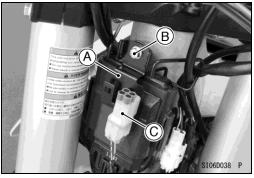
Torque - Bracket bolt: 5.0 N·m (0.51 kgf·m, 44 in·lb)

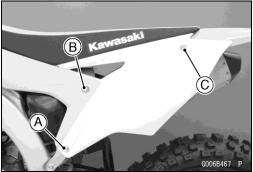
 Install the Kawasaki diagnostic system connector [C] to the diagnosis connector bracket.

Remove: (Left side only)
 Side Cover Bolt [A]
 Radiator Shroud Bolt [B]
 Seat Bolt [C]

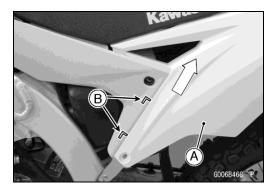




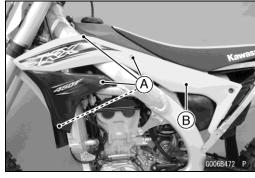




 Pull the side cover [A] upward to clear the hooks [B] and remove the side cover.



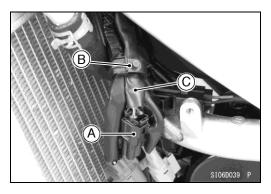
Remove: (Left side only)
 Radiator Shroud Bolts [A]
 Radiator Shroud [B]



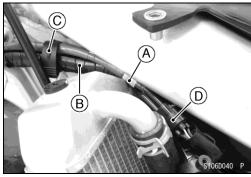
 Remove the cap [A] from the connector for KX FI Calibration Kit.

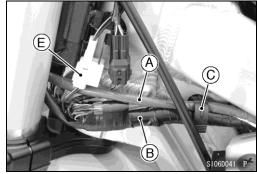
NOTE

- O Store the connector cap as it will not be used.
- Open the clamp [B] to free the harness [C] and refit the clamp.

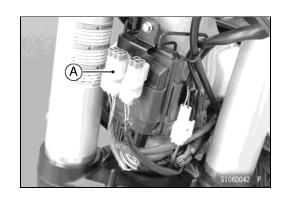


- Connect the calibration kit connecting sub-harness [A] to the connector for calibration kit. Route the sub-harness along the main harness [B].
- O Secure the sub-harness with the clamp [C].
- O Position the connector [D] under the frame.
- O Route the calibration kit connecting sub-harness inside the engine stop switch lead wire.
 - Engine Stop Switch Lead Wire Connector [E]





• Install the connector [A] of the calibration kit connecting sub-harness to the diagnosis connector bracket.



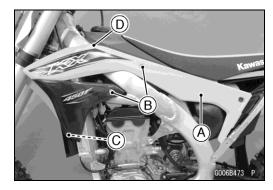
- Install the radiator shroud [A].
- Tighten the radiator shroud bolts.

L = 9 mm (0.35 in.) [B]

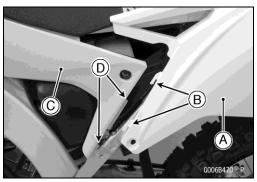
L = 14 mm (0.55 in.) [C]

L = 20 mm (0.79 in.) [D]

Torque - Radiator Shroud Bolt: 7.0 N⋅m (0.71 kgf⋅m, 62 in⋅lb)



 Insert the hooks [B] of the side cover [A] with the ribs [D] of the radiator shroud [C].



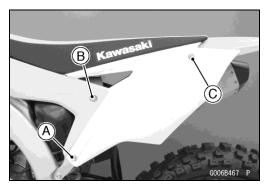
Tighten:

Torque - Side Cover Bolt [A]: 7.0 N·m (0.71 kgf·m, 62 in·lb)

Radiator Shroud Bolt [B]: 7.0 N·m (0.71 kgf·m,

62 in·lb)

Seat Bolt [C]: 25 N·m (2.5 kgf·m, 18 ft·lb)

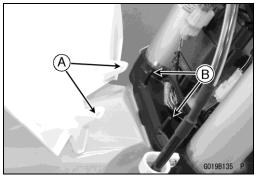


- Fit the holes [A] of the number plate over the projections [B] on the steering stem base.
- O Run the brake hose in front of the number plate.
- Fit the band of the number plate over the handlebar pad and tighten the number plate bolt.

Torque - Number Plate Bolt: 8.0 N·m (0.82 kgf·m, 71 in·lb)

NOTE

 Be sure to turn the handlebar fully right and left to confirm that it turns smoothly without binding.

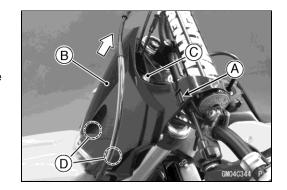


KX250F (2016 model)

Remove:
 Band [A] of the number plate [B]

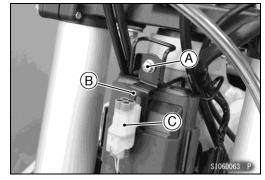
 Number plate bolt [C]

 Clear the number plate from the projections [D] on the steering stem base.

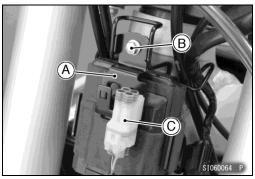


Remove: Bracket Bolt [A] Bracket [B]

 Remove the Kawasaki diagnostic system connector [C] from the bracket.



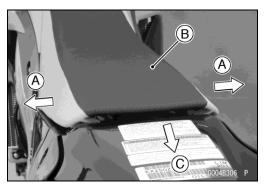
- Install the diagnosis connector bracket [A] and tighten the bracket bolt [B].
- Install the Kawasaki diagnostic system connector [C] to the diagnosis connector bracket.



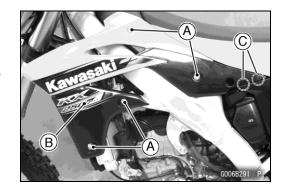
• Remove the side cover bolts [A] on both sides.



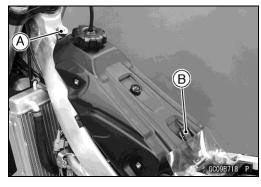
- Spread the side covers lightly [A].
- Pull and remove the seat [B] toward the rear [C].



- Remove:
 Bolt [A]
 - Radiator Shroud [B]
- Clear the tabs [C] of the radiator shroud from the air cleaner housing.



Remove.Fuel Tank Bolt [A]Band [B]

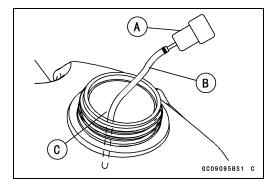


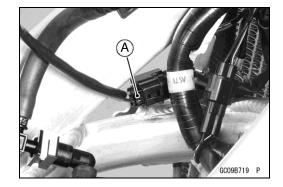
- Draw the fuel out from the fuel tank with a commercially available fuel pump [A].
- O Use a soft plastic hose [B] as a pump intake hose in order to insert the hose smoothly.
- O Put the hose through the fill opening [C] into the tank and draw the fuel out.

AWARNING

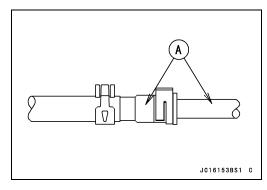
Spilled fuel is flammable and can be explosive under certain conditions. The fuel can not be removed completely from the fuel tank. Be careful for remained fuel spillage.

- Close the fuel tank cap.
- Lift up the fuel tank, and disconnect the fuel pump lead connector [A].

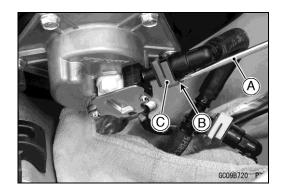




- Be sure to place a piece of cloth around the fuel hose joint.
- Wipe off the dirt of the surface [A] around the connection using a cloth or a soft brush.



- Insert the standard tip screwdriver [A] into the slit [B] on the joint lock [C].
- Turn the driver to disconnect the joint lock.



• Disconnect the fuel hose joint [A] from the fuel outlet pipe.

AWARNING

Fuel is flammable and explosive under certain conditions and can cause severe burns. Be prepared for fuel spillage; any spilled fuel must be completely wiped up immediately. When the fuel hose is disconnected, fuel spills out from the hose and the pipe because of residual pressure. Cover the hose connection with a piece of clean cloth to prevent fuel spillage.

Remove the fuel tank, and place a it on a flat surface.

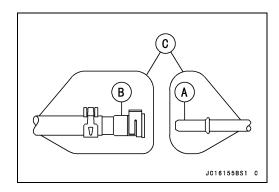


O Do not apply the load to the fuel outlet pipe of the fuel pump.

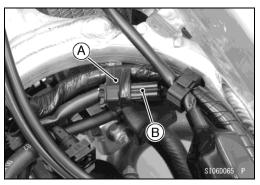
AWARNING

Gasoline is extremely flammable and can be explosive under certain conditions, creating the potential for serious burns. Store the fuel tank in an area which is well-ventilated and free from any source of flame or sparks. Do not smoke in this area. Place the fuel tank on a flat surface and plug the fuel pipes to prevent fuel leakage.

- Clean the pipe [A].
- Cover the pipe and hose joint [B] with plastic bags [C] to keep them clean.

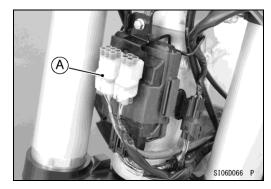


- Unwind the tape [A].
- Remove the cap [B] from the connector for KX FI Calibration Kit.
- Connect the calibration kit connecting sub-harness to the connector and run the sub-harness along the main harness.

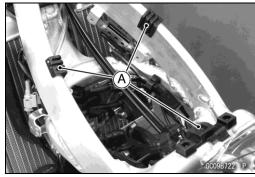




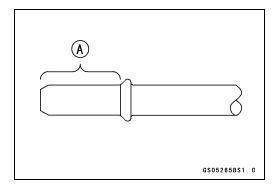
• Install the connector [A] of the calibration kit connecting sub-harness on the diagnostic connector bracket.



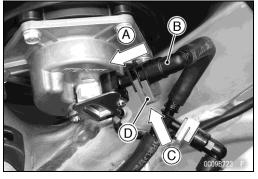
- Run the fuel hoses correctly. (Refer to the Service Manual.)
- Confirm that the dampers [A] are in place on the frame.



- Remove the vinyl bags on the pipe and hose joint.
- Check that there are no flaws, burrs, and adhesion of foreign materials on fuel outlet pipe [A].
- Check the joint lock for deformation and wear.
- If the joint lock is deformed, replace the fuel hose with a new one
- Apply engine oil to the fuel outlet pipe lightly.



- Insert [A] the fuel hose joint [B] straight onto the fuel outlet pipe until the hose joint clicks.
- Push [C] the joint lock [D].



 Push and pull [A] the fuel hose joint back and forth more than two times, and make sure it is locked and does not come off.

AWARNING

Leaking fuel can cause a fire or explosion resulting in serious burns. Make sure the hose joint is installed correctly on the delivery pipe by sliding the joint.

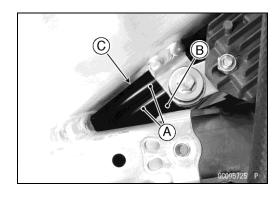
- ★ If it comes off, reinstall the hose joint.
- Connect the fuel pump lead connector.

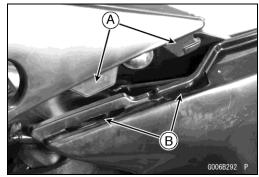


- Hook the band to the fuel tank.
- Tighten the fuel tank bolt.
- After installing the fuel tank, make sure that both throttle cables [A] (outer) move slightly by pulling them back and forth in the upper space of the right side of the fuel tank [B]. Check that both throttle cables run under the frame (right side) [C].

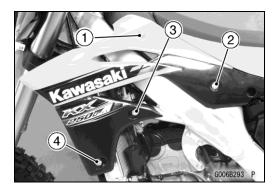
NOTE

- O Check the fuel hose position. If the fuel hose interferes with the cylinder head cover, move the fuel hose upward.
- Install the radiator shroud.
- O Insert the tabs [A] of the radiator shroud into the slots [B] of the air cleaner housing.

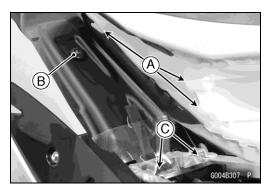




Tighten the radiator shroud bolts in the order of [1] to [4].
 L = 13 mm (0.51 in.) [1 to 3]
 L = 20 mm (0.79 in.) [4]



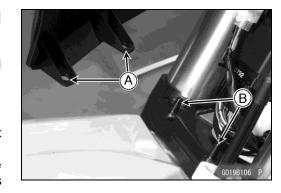
- Install the seat.
- O Insert the hooks [A] of the seat under the flange collar [B] and brackets [C].
- Take care not to damage the side covers with the bracket of seat.
- Tighten the side cover bolts.



- Fit the holes [A] in the number plate over the projections [B] on the steering stem base.
- O Run the brake hose in front of the number plate.
- Fit the band of the number plate over the handlebar pad and tighten the number plate bolt.

NOTE

- O Be sure to turn the handlebar fully right and left to confirm that it turns smoothly without binding.
- If the engine starting difficulty, connect the 12 V battery to the main harness (Refer to Service Manual (Self-diagnosis Procedures in the Fuel System (DFI) chapter)).
- O When the battery is connected, the fuel pump is driven and the pressure of the fuel line increases.



To obtain optimum engine control setting

ON Line mode

By connecting the FI Calibration Controller to the motorcycle (On Line mode), you can change or edit the setting data in ECU or write a prepared data into ECU.

Connecting the FI Calibration Controller to the motorcycle

NOTE

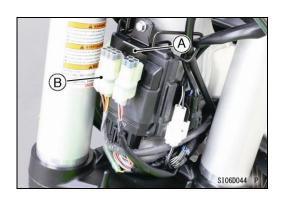
- O To connect the FI Calibration Kit to the motorcycle, it is necessary to install the calibration kit connecting sub-harness (sold separately) to the motorcycle. (For details, refer to "Installing the calibration kit connecting sub-harness" on page 18.)
- Connect the FI Calibration Controller and the motorcycle by the following procedure.

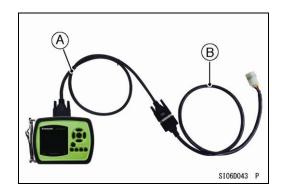
NOTE

- O Be sure to charge the battery of the Controller sufficiently before use.
- O Do not connect the Controller to the motorcycle while charging its battery.
- Confirm that the SD memory card is in the slot before turning on the Controller. Do not remove the SD memory card while operating the Controller.
- Connect the controller transfer cable [A] to the controller transfer cable connector on the Controller.
- Connect the vehicle transfer cable [B] to the controller transfer cable.

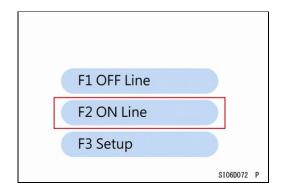
NOTE

- O Tighten the connecting screws of the connectors securely.
- Unlock the band [A] of the number plate [B].
- Remove the number plate bolt [C].
- Clear the number plate from the projections [D] on the steering stem base.
- B
- Remove the connector [B] of the calibration kit connecting sub-harness from the diagnosis connector bracket [A] and remove the cap from the connector.
- Connect the vehicle transfer cable to the connector of the calibration kit connecting sub-harness.





- Turn on the Controller.
- O The orange launch control mode indicator light (LED) of the motorcycle illuminates and then goes off.
- At the mode selection screen, press the F2 button.



- If the cable connection is faulty, the warning shown in the drawing will appear.
- Reconnect the cables properly and press OK button or press the Cancel button to return to the mode selection screen.



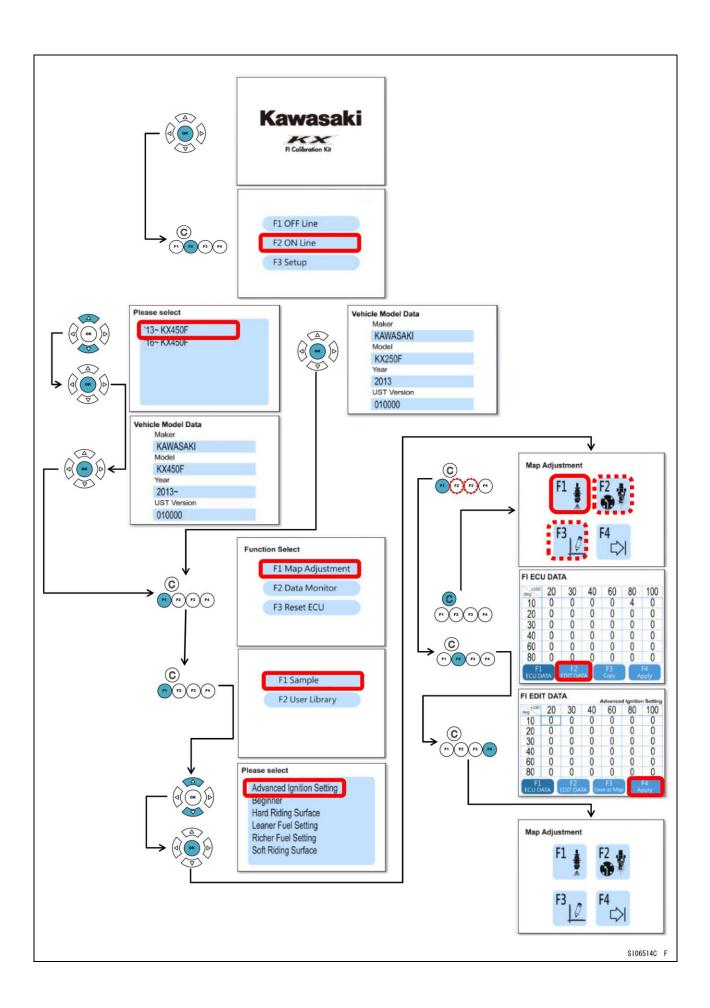
Using a stored setting data as it is

* If you are going to perform setting for the first time, start from this procedure.

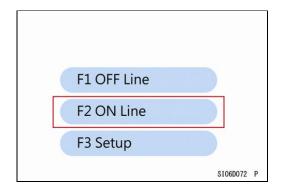
This procedure is to write a stored data (sample data or previously saved setting data) into ECU as it is.

Perform the procedure following the steps of this text while referring to the flowchart shown below.

The following description is to use a sample data. The procedure to use a user library data is almost the same.

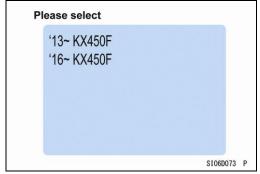


- Turn on the FI Calibration Controller.
- The orange launch control mode indicator light (LED) of the motorcycle illuminates and then goes off.
- At the Mode selection screen press the F2 button.



NOTE

 On 2013 and after KX450F models, the model selection screen appears. Select your motorcycle model and press the OK button.



- The vehicle information will be displayed as shown in the drawing, and the orange communication indicator will illuminate.
- Press the OK button and display the function select screen.
- Vehicle Model Data

 Maker

 KAWASAKI

 Model

 KX450F

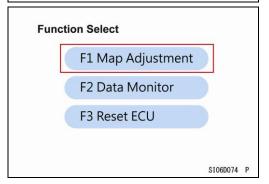
 Year

 2016

 UST Version

 010000

• Press the F1 button at the function select screen.



Press F1 button to select Sample setting.

Sample	To select a preset recommended setting data.		
User Library	To select one of the previously saved setting		
	data.		

- Use a sample setting when you perform setting for the first time
- The procedure to use a setting data in the User Library is the same.



 Read the description of each setting data in the following sample data table and select a setting data to be used.

<Sample Date Table>

	Sample Date Table>			
No.	Setting data	Description		
1	Advanced Ignition	The ignition timing is advanced by		
1	Setting	3° from the standard setting.		
		Fuel injection amount is increased		
2	Beginner	and the ignition timing is retarded		
		to suppress the engine output.		
		An example of setting for hard and		
	Hard Riding	slippery surface (with bad traction).		
3	Surface	Fuel injection amount is increased		
	Surface	and the ignition timing is retarded		
		for better traction.		
4	Leaner Fuel	Fuel injection amount is decreased		
4	Setting	by 5% from the standard setting.		
5	Retarded Ignition	The ignition timing is retarded by 3°		
5	Setting	from the standard setting.		
	Richer Fuel	Fuel injection amount is increased		
6	Setting	by 5% from the standard setting.		
	_	An example of setting for soft		
	Soft Riding	surface like sands (with good		
7		traction). Fuel injection amount and		
	Surface	the ignition timing are adjusted to		
		obtain optimum power output.		
		P P		

NOTE

- It is recommended to ride and feel the difference between the standard and changed settings. For fuel injection amount, try the standard, No. 4 and No. 6 settings. For ignition timing, try the standard, No. 1 and No. 5 settings.
- From the standard and No. 1, 4, 5 and 6 settings, combine the settings for the specific ranges (defined by engine speed and throttle opening) which you feel better, and perform fine adjustment to obtain the setting you feel best. For a range you felt worse, it is recommended to return the setting of that range to the former one and retry.
- O No. 3 and 7 are examples of settings for different surface conditions. Each setting is just an example and you may not obtain your expected performance from it depending on the situations.
- O No. 2 is a setting where engine output is suppressed intentionally for beginners.
- Select one of the settings using the Up or Down button and press the OK button.

Advanced Ignition Setting Beginner Hard Riding Surface Leaner Fuel Setting Retarded Ignition Setting Richer Fuel Setting Soft Riding Surface

S106483C P

Advanced Ignition Setting Beginner Hard Riding Surface Leaner Fuel Setting Retarded Ignition Setting Richer Fuel Setting Soft Riding Surface

S106483C P

- Map adjustment screen is displayed.
- Press the F1, F2 or F3 button to select the item to be adjusted.

F1: Fuel injection amount

F2: Ignition timing

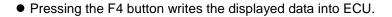
F3: Setting of mapping point

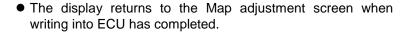
NOTE

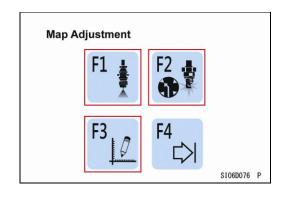
- The setting data edit screen of the selected setting data is displayed when F1, F2 or F3 button is pressed. Even the selected setting data is to be used as it is, it is necessary to select this screen.
- The current data (ECU DATA) of the item selected in the previous step is displayed in the edit screen.
- Pressing the F2 button displays the selected sample setting data.

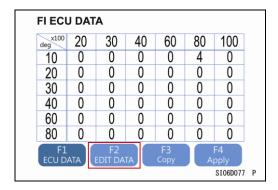
NOTE

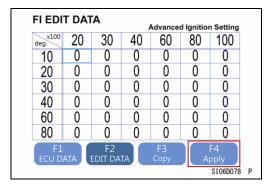
 To write the selected setting data into ECU, refer to "Using the registered setting data after editing" on page 33.

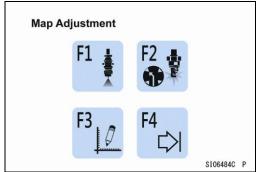












• To finish the operation, press the Cancel button to return to the previous screen.

NOTE

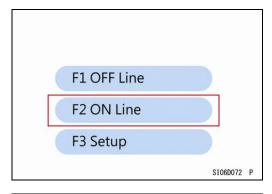
- If the Cancel button is pressed at Map adjustment screen, the message shown in the drawing appears.
- O Pressing the F1 button returns the display to the Setting selection screen.
- O Pressing the F2 button returns the display to the Map adjustment screen.
- O To save the setting data written in ECU, refer to "Saving the setting data" on page 46.

The setting data or the data setup information has been changed. Do you want to abort the setting data? F1 YES F2 NO S1060055 P

Using the registered setting data after editing

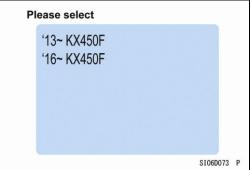
You can use a sample setting data or a previously-saved setting data after editing its fuel injection amount and ignition timing mapping specified by throttle opening and engine speed.

- Turn on the FI Calibration Controller.
- The orange launch control mode indicator light (LED) of the motorcycle illuminates and then goes off.
- At the Mode selection screen, press the F2 button.

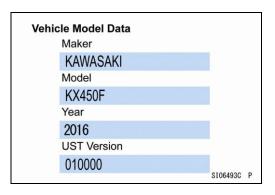


NOTE

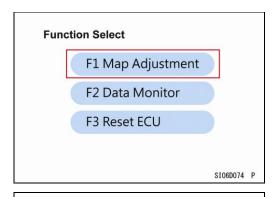
 On 2013 and after KX450F models, the Model selection screen appears. Select your motorcycle model and press the OK button.



- The vehicle information will be displayed as shown in the drawing, and the orange communication indicator will illuminate.
- Press the OK button to display the Function select screen.



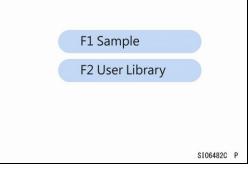
• Press the F1 button at the Function select screen.

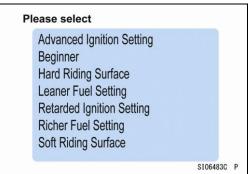


Select which type of data is to be used as a base setting data.
 NOTE

Sample	To select a preset recommended setting data.
User Library	To select one of the previously saved setting
	data.

- Press F1 or F2 button to select the type of data to be used.
 The following description uses a sample data as an example.
- Select one of the settings using the Up or Down button and press the OK button.
- For details of the sample data, refer to "Sample Data Table" on page 31.



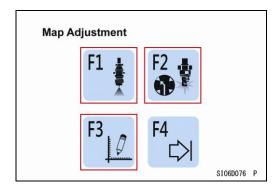


- Map adjustment screen appears.
- O Press the F1, F2 or F3 button to select the item to be adjusted.

F1: Fuel injection amount (Refer to p. 34.)

F2: Ignition timing (Refer to p. 38.)

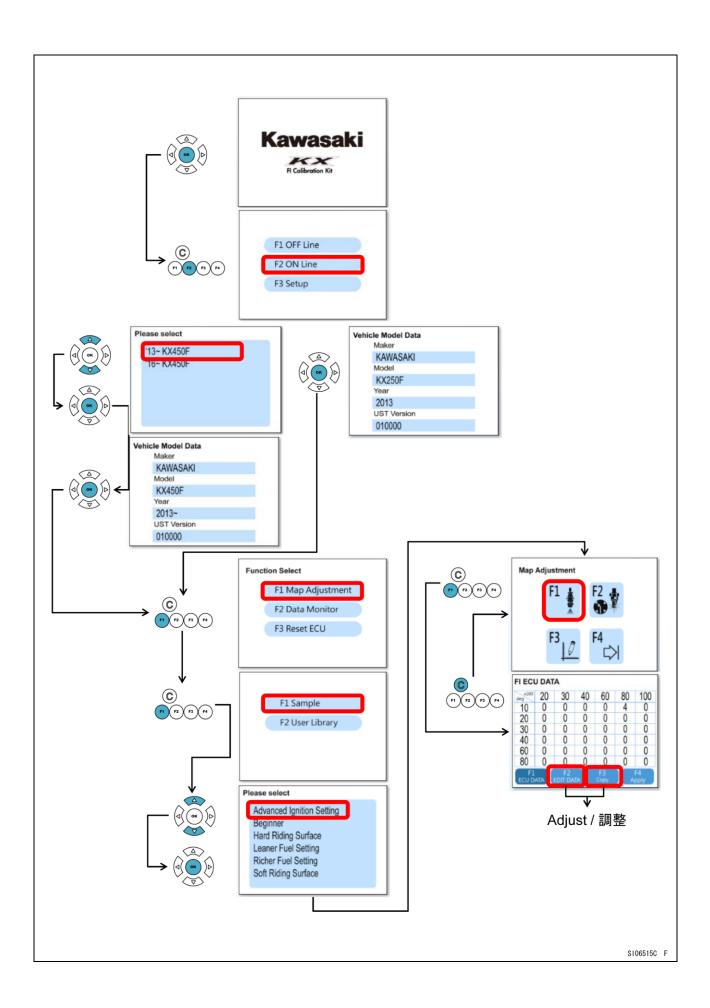
F3: Setting the mapping points (Refer to p. 42.)



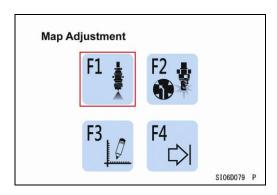
Adjustment of fuel injection amount

The fuel injection amount can be increased/decreased (by %) for each mapping point specified by engine speed and throttle opening.

Perform the procedure following the steps of this text while referring to the flowchart shown below. The following description is to use a sample data. The procedure to use a user library data is almost the same.



• Press the F1 button at the Map adjustment screen.



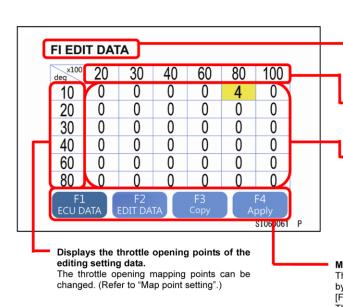
- The current setting data (FI ECU DATA) is displayed in the setting data edit screen.
- Pressing the F2 button displays the selected setting data.

NOTE

O Entering the F2 EDIT DATA mode enables the editing of data.

x100 deg	20	30	40	60	80	100	
10	0	0	0	0	4	0	
20	0	0	0	0	0	0	
30	0	0	0	0	0	0	
40	0	0	0	0	0	0	
60	0	0	0	0	0	0	
80	0	0	0	0	0	0	
F1 ECU D	ATA I	F2 EDIT DA	ТА	F3 Copy		F4 pply	
						SI06D077	





Displays the selected data.

[FI EDIT]: Displays the currently editing setting data. [FI ECU]: Displays the currently active setting data in ECU.

Displays the engine speed mapping points of the editing setting data.

The engine speed mapping points can be changed. (Refer to "Map point setting".)

Adjusts the fuel injection amount based on the engine speed and throttle opening.

The fuel injection amount at each point specified by the engine speed and throttle opening can be increased/decreased (by %).

Press the F2 button to enter the EDIT DATA mode. Select the point to be changed and press the OK button. Change the value using Up and Down buttons and press the OK button to enter the changed value.

Mode change buttons

The mode and display of the Controller can be changed as follows by pressing the F1 to F4 buttons.

[F1 ECU DATA]: Displays the setting data in the connected ECU. The data cannot be edited in this mode.

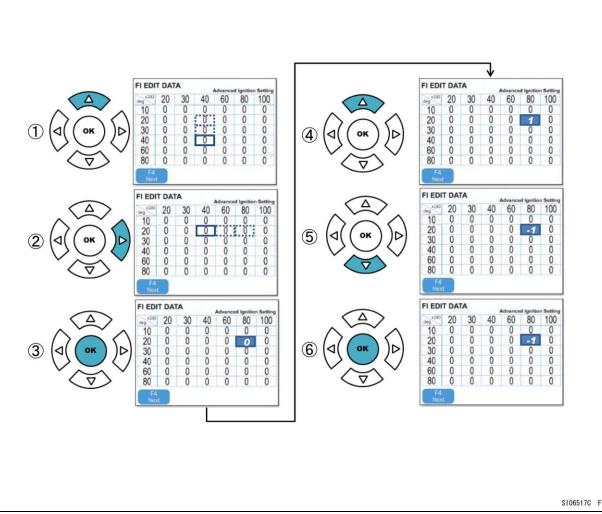
[F2 EDIT DATA]: Displays the content of the selected setting data. The data can be edited in this mode.

[F3 Copy]: Copies the setting data in the connected ECU into the EDIT DATA mode.

[F4 Apply]: Writes the setting data edited in the EDIT DATA mode into ECU.

S106537C F

<Operation in data editing screen>



- ① Pressing the Up button moves the cursor upward.
- ② Pressing the Right button moves the cursor rightward.
- ③ Pressing the OK button confirms the selection of the item on the cursor.
- ④ Pressing the Up button increases the value.
- ⑤ Pressing the Down button decreases the value.
- 6 Pressing the OK button confirms the selection of the current value.

NOTE

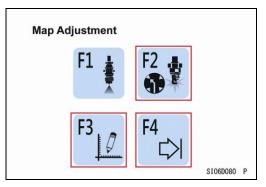
- The adjustable range of the Controller is ±50 (%). However, if the input data exceeds the applicable setting range of ECU, the value within the latter range is applied. For example, if "+45" is selected while the setting range of ECU is +20 to -10, background of the map sheet changes to red and the value "+20" is applied.
- The applicable setting range of ECU is +20 to -10 (%).
- The background colors of the map sheet (cell) are defined as follows.

Color	Definition
White	The value unchanged.
Yellow	The value changed from the original setting value.
Red	The value exceeding the setting range of ECU.

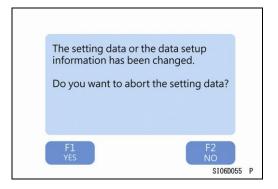
- After editing, pressing the F4 button writes the edited setting data into ECU.
- The display returns to the Map adjustment screen when the writing into ECU has completed.

FI EDI	T DAT	Ά	,	Advance	d Ignition	n Setting	
deg x100	20	30	40	60	80	100	
10	0	0	0	0	0	0	
20	0	0	0	0	0	0	
30	0	0	0	0	0	0	
40	0	0	0	0	0	0	
60	0	0	0	0	0	0	
80	0	0	0	0	0	0	
F1 ECU D		F2 Edit da	ТА	F3 Copy		F4 pply SI06D078	P

- To continue editing of the setting data, or to save the data, press the F2, F3 or F4 button.
 - F2: Adjusting the ignition timing of the same data setting (Refer to p. 38.)
 - F3: Changing the mapping points (Refer to p. 42.)
 - F4: Saving the data into SD memory card (Refer to p. 46.)



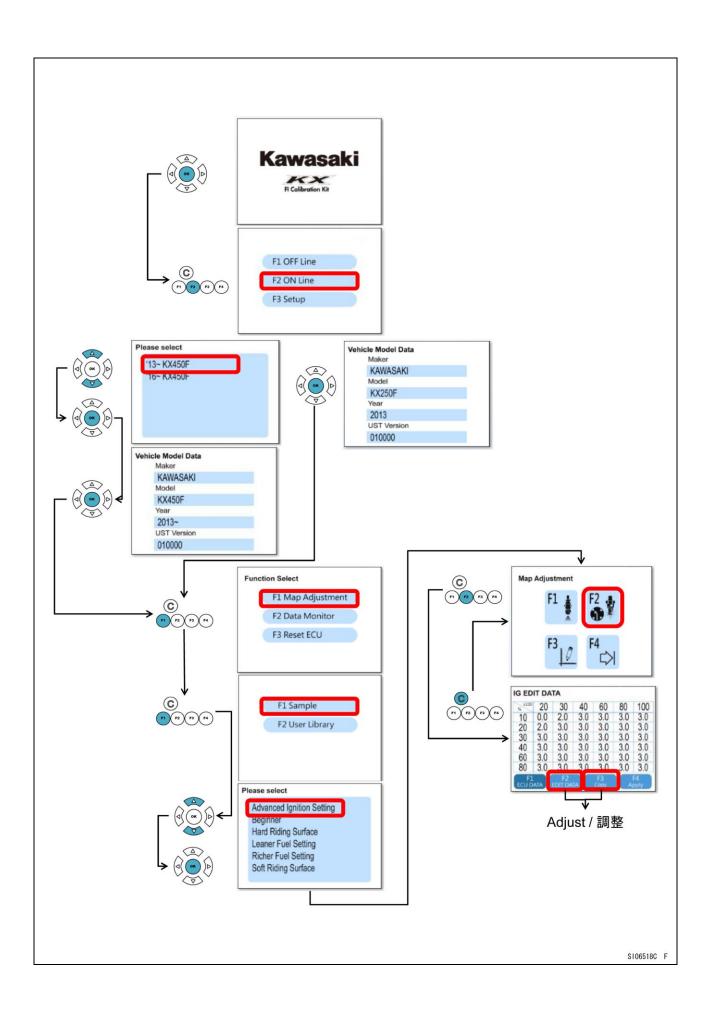
- O If the Cancel button is pressed at Map adjustment screen, the message shown in the drawing appears.
- O Pressing the F1 button discards the current setting data and returns the display to the Setting selection screen.
- O Pressing the F2 button returns the display to the Map adjustment screen.
- O To save the setting data written in ECU, refer to "Saving the setting data" on page 46.



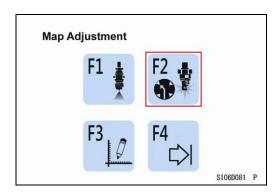
Adjustment of ignition timing

The ignition timing can be advanced/retarded (by degree) for each mapping point specified by engine speed and throttle opening.

Perform the procedure following the steps of this text while referring to the flowchart shown below. The following description is to use a sample data. The procedure to use a user library data is almost the same.



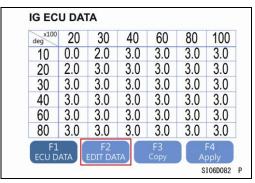
• Press the F2 button at the Map adjustment screen.



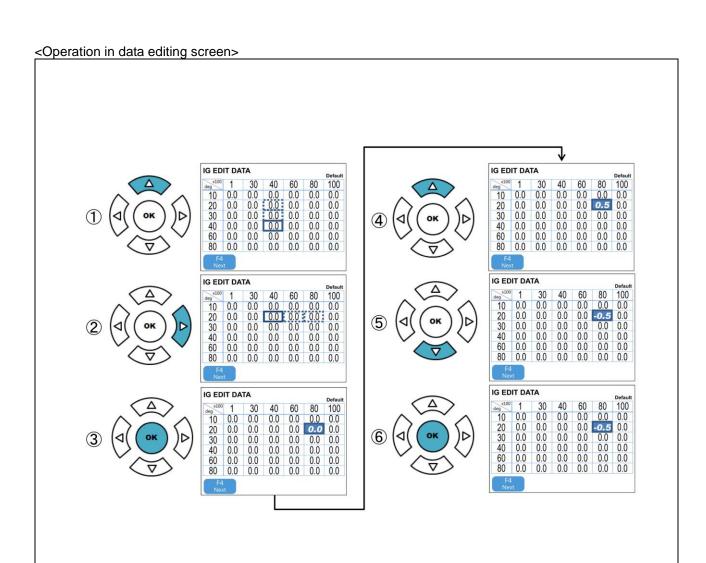
- The current setting data (IG ECU DATA) is displayed in the setting data edit screen.
- Pressing the F2 button displays the selected setting data.

NOTE

O Entering the F2 EDIT DATA mode enables the editing of data.



<Data editing screen> **IG EDIT DATA** Displays the selected data. [IG EDIT]: Displays the currently editing setting data. x100 20 40 30 60 80 100 [IG ECU]: Displays the currently active setting data in ECU. 0.0 2.0 3.0 3.0 3.0 3.0 10 Displays the engine speed mapping points of the 2.0 3.0 3.0 3.0 3.0 3.0 20 editing setting data. 3.0 3.0 30 3.0 3.0 3.0 3.0 The engine speed mapping points can be changed. (Refer to "Map point setting".) 40 3.0 3.0 3.0 3.0 3.0 3.0 60 3.0 3.0 3.0 3.0 3.0 3.0 Adjusts the ignition timing based on the engine speed and throttle opening. 3.0 3.0 3.0 3.0 3.0 80 3.0 The ignition timing at each point specified by the engine speed and throttle opening can be advanced/retarded (by degree). Press the F2 button to enter the EDIT DATA mode. Select the ECU DATA point to be changed and press the OK button. Change the S106D062 value using Up and Down buttons and press the OK button to enter the changed value. Displays the throttle opening points of the Mode change buttons editing setting data. The mode and display of the Controller can be changed as follows by The throttle opening mapping points can be pressing the F1 to F4 buttons. changed. (Refer to "Map point setting".) [F1 ECU DATA]: Displays the setting data in the connected ECU. The data cannot be edited in this mode. [F2 EDIT DATA]: Displays the content of the selected setting data. The data can be edited in this mode. [F3 Copy]: Copies the setting data in the connected ECU into the EDIT DATA mode [F4 Apply]: Writes the setting data edited in the EDIT DATA mode into ECU. S106538C F



S106520C F

- ① Pressing the Up button moves the cursor upward.
- 2 Pressing the Right button moves the cursor rightward.
- ③ Pressing the OK button confirms the selection of the item on the cursor.
- ④ Pressing the Up button increases the value.
- ⑤ Pressing the Down button decreases the value.
- ⑥ Pressing the OK button confirms the selection of the current value.

NOTE

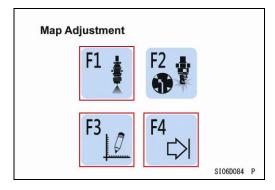
- \odot The adjustable range of the Controller is ± 12.0 (deg). However, if the input data exceeds the applicable setting range of ECU, the value within the latter range is applied. For example, if "+10.0" is selected while the setting range of ECU is +3 to -10, background of the map sheet changes to red and the value "+3" is applied.
- The applicable setting range of ECU is +3 to -10 (deg).
- The background colors of the map sheet (cell) are defined as follows.

Color	Definition
White	The value unchanged.
Yellow	The value changed from the original setting value.
Red	The value exceeding the setting range of ECU.

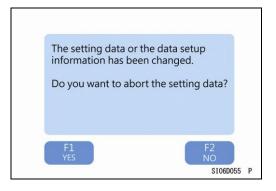
- After editing, pressing the F4 button writes the edited setting data into ECU.
- The display returns to the Map adjustment screen when the writing into ECU has completed.

IG E	OIT DA	TA	,	Advance	d Ignitio	n Setting	
x100 deg	20	30	40	60	80	100	
10	0.0	2.0	3.0	3.0	3.0	3.0	
20	2.0	3.0	3.0	3.0	3.0	3.0	
30	3.0	3.0	3.0	3.0	3.0	3.0	
40	3.0	3.0	3.0	3.0	3.0	3.0	
60	3.0	3.0	3.0	3.0	3.0	3.0	
80	3.0	3.0	3.0	3.0	3.0	3.0	
F: ECU [F2 EDIT DA	ТА	F3 Copy	A	F4 pply	
						S106D083	Р

- To continue editing of the setting data, or to save the data, press the F1, F3 or F4 button.
 - F1: Adjusting the fuel injection amount of the same data setting (Refer to p. 34.)
 - F3: Changing the mapping points (Refer to p. 42.)
 - F4: Saving the data into SD memory card (Refer to p. 46.)



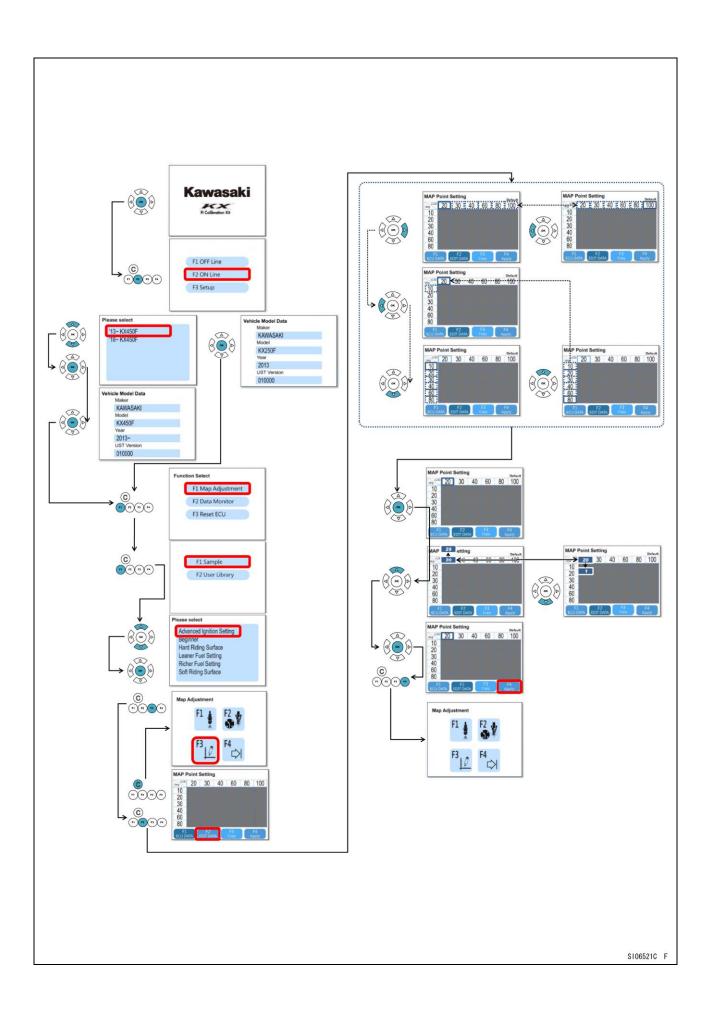
- If the Cancel button is pressed at Map adjustment screen, the message shown in the drawing appears.
- Pressing the F1 button discards the current setting data and returns the display to the Setting selection screen.
- O Pressing the F2 button returns the display to the Map adjustment screen.
- To save the setting data written in ECU, refer to "Saving the setting data" on page 46.



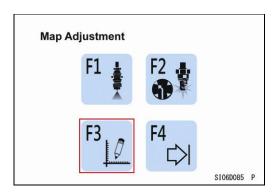
Mapping point setting

The mapping points specified by engine speed and throttle opening for adjustment of fuel injection amount and ignition timing can be changed.

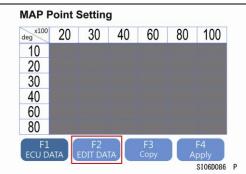
Perform the procedure following the steps of this text while referring to the flowchart shown below. The following description is to use a sample data. The procedure to use a user library data is almost the same.

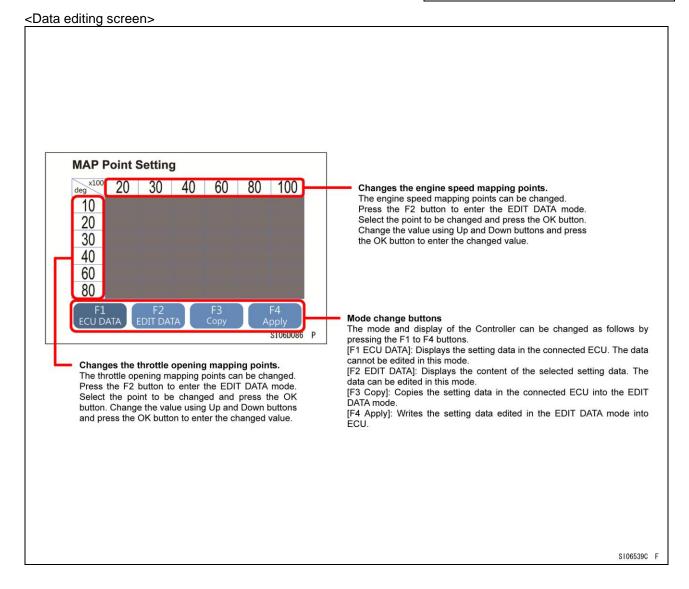


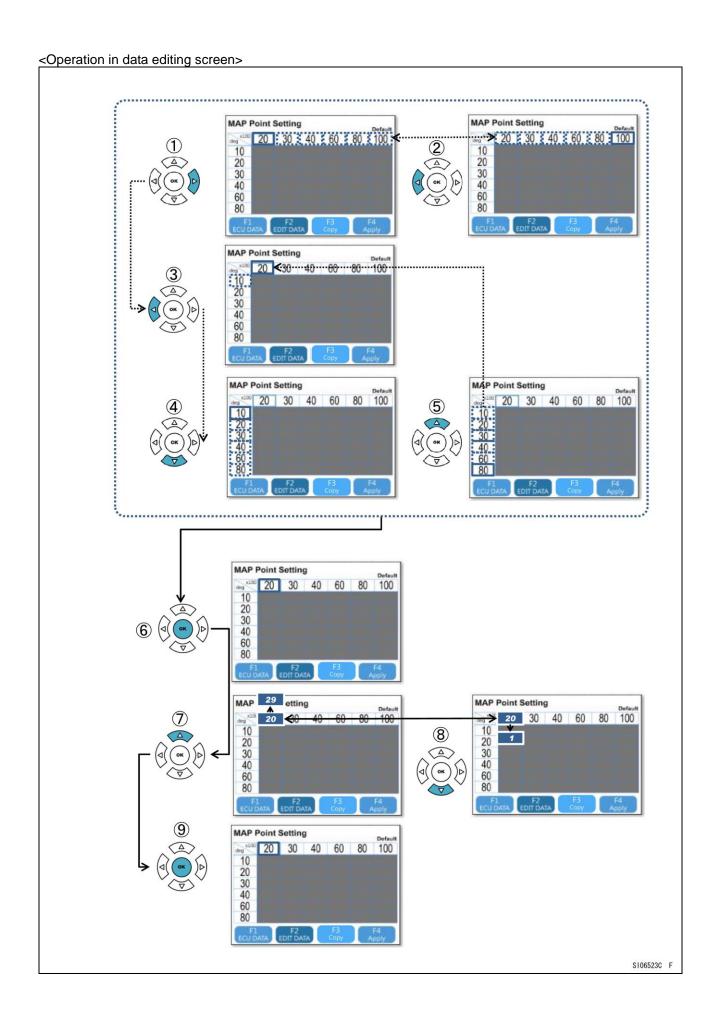
• Press the F3 button at the Map adjustment screen.



- The current setting data (MAP Point Setting) is displayed in the setting data edit screen.
- Pressing the F2 button displays the selected setting data.
 - NOTE
- O Entering the F2 EDIT DATA mode enables the editing of data.

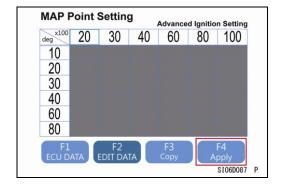






- ① Pressing the Right button moves the cursor rightward.
- ② Pressing the Left button moves the cursor leftward.
- ③ Pressing the left button cursor is moved to the vertical axis.
- ④ Pressing the Down button moves the cursor downward.
- ⑤ Pressing the Up button moves the cursor upward.
- 6 Pressing the OK button confirms the selection of the item on the cursor.
- Pressing the Up button increases the value.
- 8 Pressing the Down button decreases the value.
- Pressing the OK button confirms the selection of the current value.

- The setting of the fuel injection amount is based on two variables - throttle opening and engine speed, whereas the setting of the carburetor is only based on the throttle opening. This enables finer setting for the fuel injection system.
- After editing, pressing the F4 button writes the edited setting data into ECU.
- The display returns to the Map adjustment screen when the writing into ECU has completed.

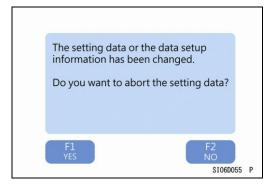


- To continue editing of the setting data, or to save the data, press the F1, F2 or F4 button.
 - F1: Adjusting the fuel injection amount of the same data setting (Refer to p. 34.)
 - F2: Adjusting the ignition timing of the same data setting (Refer to p. 38.)
 - F4: Saving the data into SD memory card (Refer to p. 46.)

NOTE

- If the Cancel button is pressed at Map adjustment screen, the message shown in the drawing appears.
- Pressing the F1 button discards the current setting data and returns the display to the Setting selection screen.
- O Pressing the F2 button returns the display to the Map adjustment screen.
- To save the setting data written in ECU, refer to "Saving the setting data" on page 46.

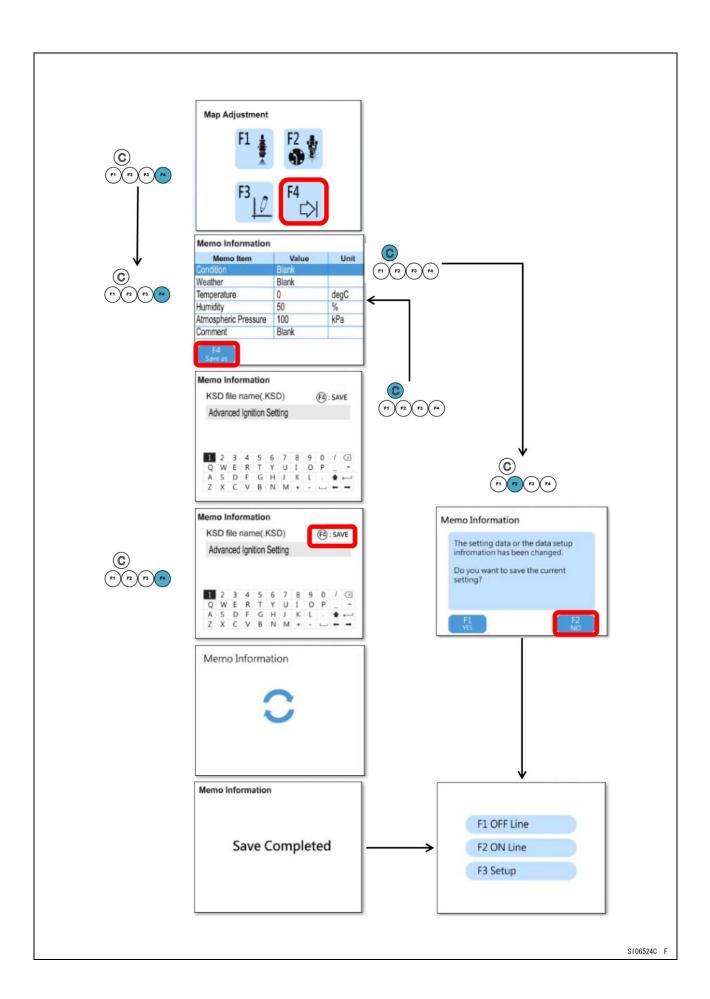
Map Adjustment F1 F2 F3 F4 S1060088 P



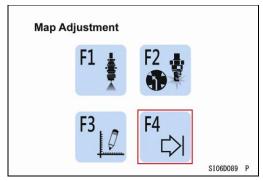
Saving the setting data

The setting data edited in the fuel injection amount or ignition timing adjustment screen can be saved in the Calibration Controller.

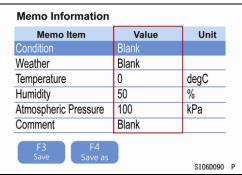
Perform the procedure following the steps of this text while referring to the flowchart shown below. The following description is to use a sample data. The procedure to use a user library data is almost the same.



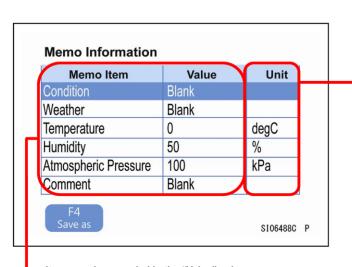
• After editing, press the F4 button at the Map adjustment screen.



• The Memo Information screen appears. You can write the surface condition, weather, etc. in the value column to save it together with the setting data.



<Memo Information screen>



Unit: Displays the unit for each item.

Only for the temperature, displayed unit can be changed. For details, refer to "Setup of FI Calibration Controller".

Items can be recorded in the "Value" column.

Condition: Can be selected from Blank / Dry / Good / Wet / Muddy / Sand / Hard. Weather: Can be selected from Blank / Sunny / Cloudy / Rain / Snow.

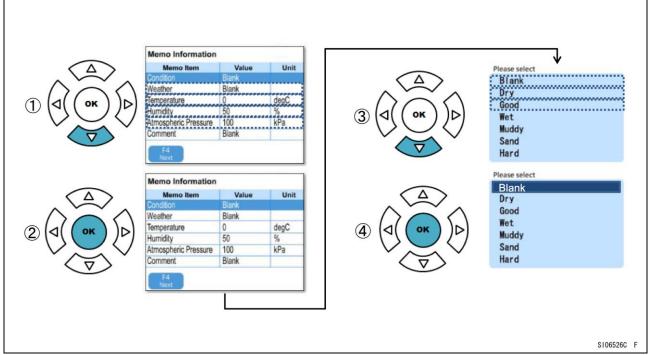
Temperature: Can be entered in figure. Humidity: Can be entered in figure.

Atmospheric Pressure: Can be entered in figure.

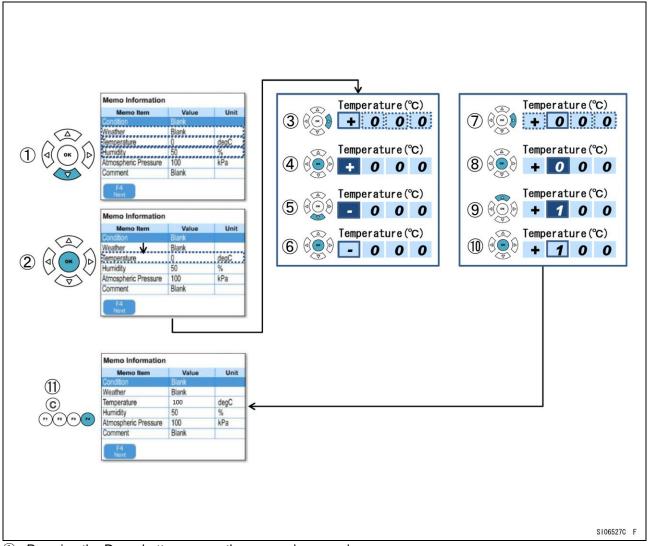
Comment: Can be entered freely.

S106543C F

<Operation in Memo Information screen>



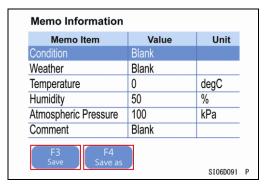
- ① Pressing the Down button moves the cursor downward.
- ② Pressing the OK button confirms the selection of the item on the cursor.
- ③ Pressing the Down button moves the cursor downward.
- ④ Pressing the OK button confirms the selection.



- ① Pressing the Down button moves the cursor downward.
- ② Pressing the OK button confirms the selection of the item on the cursor.
- ③ Pressing the Right button moves the cursor rightward.
- ④ Pressing the OK button confirms the selection of the item on the cursor.
- ⑤ Pressing the Down button changes the value to "-"(minus) value.
- 6 Pressing the OK button confirms the selection.
- Pressing the Right button moves the cursor rightward.
- Pressing the OK button confirms the selection of the item on the cursor.
- Pressing the Up button increases the value.
- ① Pressing the OK button confirms the selection.
- ① Pressing the F4 button saves the memo information and changes the display to File name edit screen.
- Pressing the F4 button stores the information and the screen changes to the File name edit screen.

- O For the setting data stored in the User Library, you can overwrite the data (Save) or save as another data (Save as).
- O Select either of the following:

F3 button: Save F4 button: Save as



- If the Cancel button is pressed at Memo Information screen, the message shown in the drawing appears.
- Pressing the F1 button returns the display to the Memo Information screen.
- O Pressing the F2 button discards the edited data and returns the display to the Mode selection screen.
- Edit the file name. Pressing the F4 button saves the setting data.

<How to input>

Select a letter to be entered using the cursor keys and press the OK button.

<lcons>

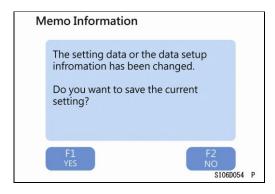
\boxtimes	"Backspace" icon Deletes a letter which is one space before the cursor.
•	"Shift" icon Shifts the upper and lower cases of the alphabet.
	"Space" icon Inputs one space.

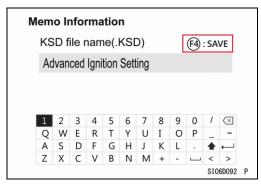
NOTE

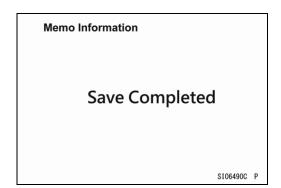
- $\ensuremath{\bigcirc}$ The following symbols cannot be used in the file name.
- The file name should be an easily-understandable one.
 For example, the following file name includes date, purpose, and creator of the file.
 - Ex) "150505-RainTest-Kawasaki.KSD": This file was created on May 5, 2015, for rain test, by Mr. Kawasaki.
- You can identify the similar files by adding a letter "b", "c" or the like at the end of the date.
 - Ex) "150505b-RainTest-Kawasaki.KSD"
- The file has been saved if the message shown in the drawing appears.

NOTE

- The file is saved in the "User Library".
- O Ride with the edited setting data and readjust as necessary.



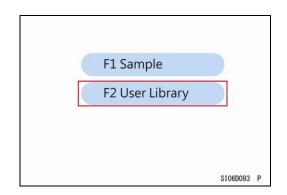




Deleting the saved setting data

The setting data saved in the FI Calibration Controller can be deleted.

- To delete the saved setting data in the FI Calibration Controller, select the User Library mode.
- Press the F2 button to select the User Library mode.



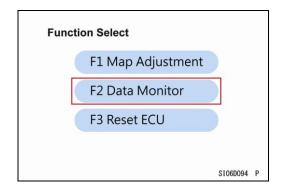
- Use the Up or Down button to select a setting data to be deleted.
- Pressing the F1 button deletes the selected setting.
- Pressing the F2 button opens the Memo Information screen.
 To edit the information, refer to "Saving the setting data" on page 46.
- Pressing the OK button displays the Map adjustment screen.
 To edit the selected setting data, refer to "Using the registered setting data after editing" on page 33.

Please select Advanced Ignition Setting231 Advanced Ignition Setting23111 Beginner12 Beginner22 Default Default123

Data Monitor

The status of the engine to which the Controller is connected is displayed.

• Press the F2 button at the Function select screen.



 The Data monitor screen appears and the numeric data of the engine to which the Controller is connected is shown in the value column.

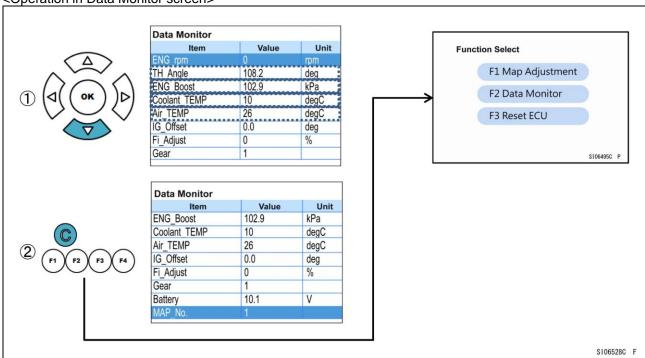
NOTE

- The MAP number is displayed only for the models with DFI setting data selection connector.
- O The connector numbers and colors are as follows.

MAP_No.1 ··· Green MAP_No.2 ··· Black MAP_No.3 ··· White

Item	Value	Unit
ENG_Boost	102.9	kPa
Coolant TEMP	10	degC
Air_TEMP	26	degC
IG_Offset	0.0	deg
Fi_Adjust	0	%
Gear	1	
Battery	10.1	V
MAP No.	1	

<Operation in Data Monitor screen>

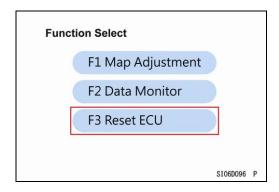


- ① Pressing the Down button moves the cursor downward.
- ② Pressing the Cancel button returns the display to the Function select screen.

Resetting ECU

ECU to which the Controller is connected can be reset to the factory setting.

• Press the F3 button at the Function select screen.

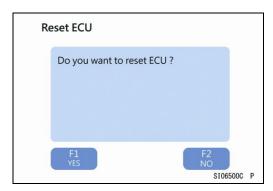


 To perform resetting of ECU, press the F1 button. To cancel, press the F2 button.

NOTE

- $\ensuremath{\bigcirc}$ By resetting, ECU returns to the factory setting.
- On models with DFI setting data selection connector, if resetting is performed when the factory-set "soft surface" or "hard surface" setting data is selected, its values will all become "0" ("standard surface" setting).

To return them to the factory-set "soft surface" or "hard surface" values, use the sample setting data for that model.



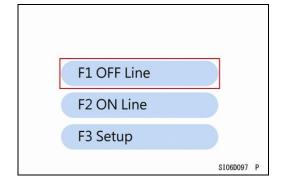
OFF Line mode

The OFF Line mode of the FI Calibration Controller is to edit the setting data without connecting it to the motorcycle.

- Turn on the FI Calibration Controller.
- Press the F1 button at the Mode selection screen.

NOTE

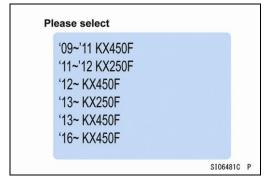
O No connection of cable to the motorcycle is required.



 Select your motorcycle model using Up or Down button and press the OK button.

NOTE

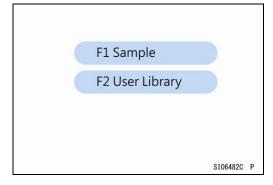
O Pressing the Cancel button returns the display to the Mode selection screen.



Select which type of data is to be used as a base setting data.
 NOTE

Sample	To select a preset recommended setting data.
User Library	To select one of the previously saved setting
	data.

Press F1 or F2 button to select the type of data to be used.
 The following description uses a sample data as an example.



O Read the description of each setting data in the following sample data table and select a setting data to be used.

<Sample Date Table>

No.	Setting data	Description
1	Advanced Ignition Setting	The ignition timing is advanced by 3° from the standard setting.
2	Beginner	Fuel injection amount is increased and the ignition timing is retarded to suppress the engine output.
3	Hard Riding Surface	An example of setting for hard and slippery surface (with bad traction). Fuel injection amount is increased and the ignition timing is retarded for better traction.
4	Leaner Fuel Setting	Fuel injection amount is decreased by 5% from the standard setting.
5	Retarded Ignition Setting	The ignition timing is retarded by 3° from the standard setting.
6	Richer Fuel Setting	Fuel injection amount is increased by 5% from the standard setting.
7	Soft Riding Surface	An example of setting for soft surface like sands (with good traction). Fuel injection amount and the ignition timing are adjusted to obtain optimum power output.

NOTE

- It is recommended to ride and feel the difference between the standard and changed settings. For fuel injection amount, try the standard, No. 4 and No. 6 settings. For ignition timing, try the standard, No. 1 and No. 5 settings.
- From the standard and No. 1, 4, 5 and 6 settings, combine the settings for the specific ranges (defined by engine speed and throttle opening) which you feel better, and perform fine adjustment to obtain the setting you feel best. For a range you felt worse, it is recommended to return the setting of that range to the former one and retry.
- O No. 3 and 7 are examples of settings for different surface conditions. Each setting is just an example and you may not obtain your expected performance from it depending on the situations.
- O No. 2 is a setting where engine output is suppressed intentionally for beginners.
- Select one of the settings using the Up or Down button and press the OK button.

Please select

Advanced Ignition Setting Beginner Hard Riding Surface Leaner Fuel Setting Retarded Ignition Setting Richer Fuel Setting Soft Riding Surface

S106483C

Please select

Advanced Ignition Setting Beginner Hard Riding Surface Leaner Fuel Setting Retarded Ignition Setting Richer Fuel Setting Soft Riding Surface

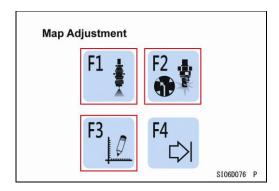
S106483C P

- Map adjustment screen is displayed.
- O Press the F1, F2 or F3 button to select the item to be adjusted.

F1: Fuel injection amount (Refer to p. 56.)

F2: Ignition timing (Refer to p. 60.)

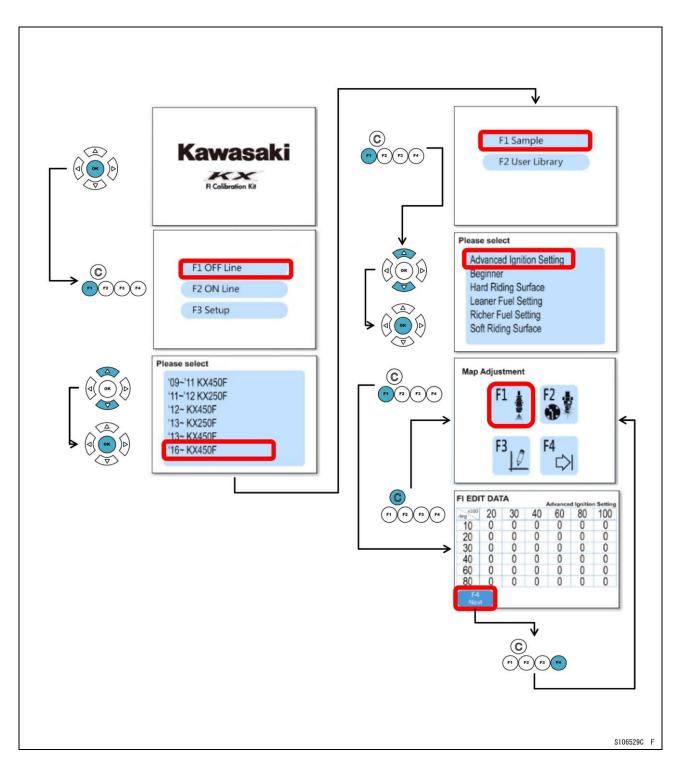
F3: Setting the mapping points (Refer to p. 64.)



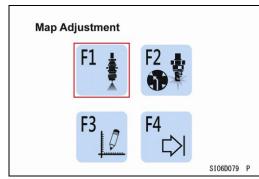
Adjustment of fuel injection amount

The fuel injection amount can be increased/decreased (by %) for each mapping point specified by engine speed and throttle opening.

Perform the procedure following the steps of this text while referring to the flowchart shown below. The following description is to use a sample data. The procedure to use a user library data is almost the same.

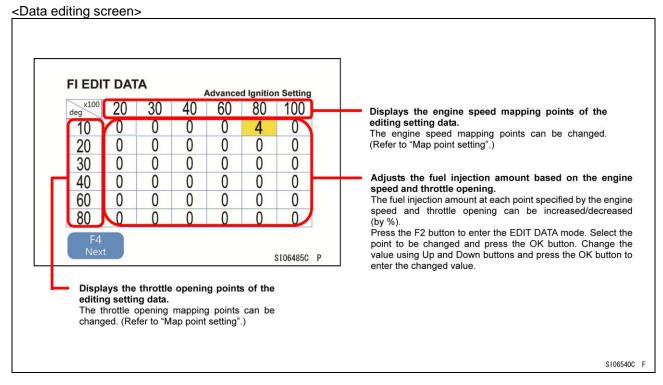


• Press the F1 button at the Map adjustment screen.

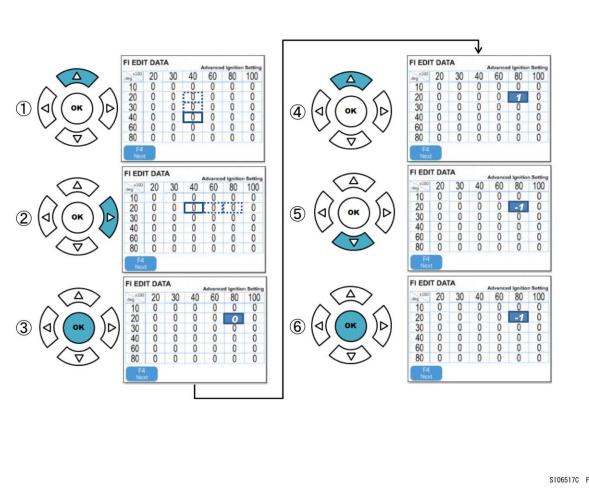


 The fuel injection amount adjustment screen (FI EDIT DATA) appears.

x100 deg	20	30	40	60	80	100
10	0	0	0	0	0	0
20	0	0	0	0	0	0
30	0	0	0	0	0	0
40	0	0	0	0	0	0
60	0	0	0	0	0	0
80	0	0	0	0	0	0







- ① Pressing the Up button moves the cursor upward.
- ② Pressing the Right button moves the cursor rightward.
- ③ Pressing the OK button confirms the selection of the item on the cursor.
- ④ Pressing the Up button increases the value.
- 5 Pressing the Down button decreases the value.
- 6 Pressing the OK button confirms the selection of the current value.

- The adjustable range of the Controller is ±50 (%). However, if the input data exceeds the applicable setting range of ECU, the value within the latter range is applied. For example, if "+45" is selected while the setting range of ECU is +20 to -10, background of the map sheet changes to red and the value "+20" is applied.
- The applicable setting range of ECU is +20 to -10 (%).
- The background colors of the map sheet (cell) are defined as follows.

Color	Definition
White	The value unchanged.
Yellow	The value changed from the original setting value.
Red	The value exceeding the setting range of ECU.

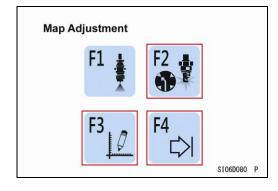
 After editing, pressing the F4 button saves the edited setting data and the display returns to the Map adjustment screen.

NOTE

 If the Cancel button is pressed, the currently displayed data is discarded and the display returns to the Map adjustment screen.

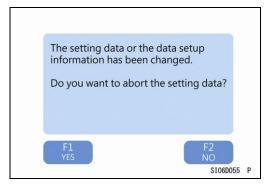
x100 deg	20	30	40	60	80	100
10	0	0	0	0	4	0
20	0	0	0	0	0	0
30	0	0	0	0	0	0
40	0	0	0	0	0	0
60	0	0	0	0	0	0
80	0	0	0	0	0	0

- To continue editing of the setting data, or to save the data, press the F2, F3 or F4 button.
 - F2: Adjusting the ignition timing of the same data setting (Refer to p. 60.)
 - F3: Changing the mapping points (Refer to p. 64.)
 - F4: Saving the data into SD memory card (Refer to p. 68.)



NOTE

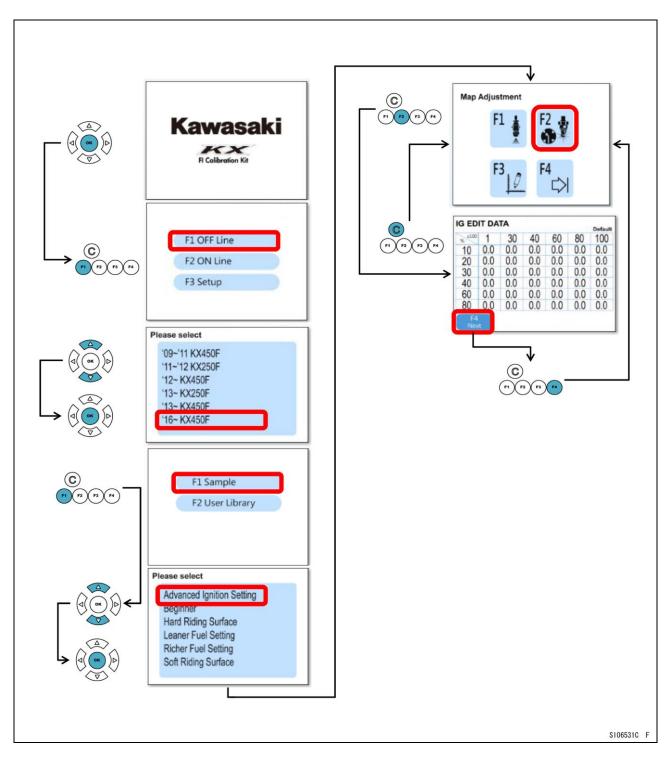
- If the Cancel button is pressed at Map adjustment screen, the message shown in the drawing appears.
- O Pressing the F1 button discards the current setting data and returns the display to the Setting selection screen.
- O Pressing the F2 button returns the display to the Map adjustment screen.



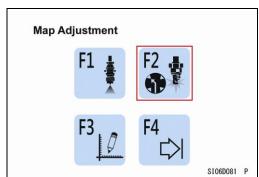
Adjustment of ignition timing

The ignition timing can be advanced/retarded (by degree) for each mapping point specified by engine speed and throttle opening.

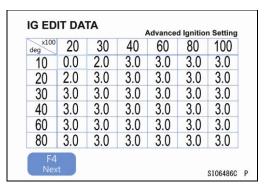
Perform the procedure following the steps of this text while referring to the flowchart shown below. The following description is to use a sample data. The procedure to use a user library data is almost the same.

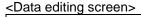


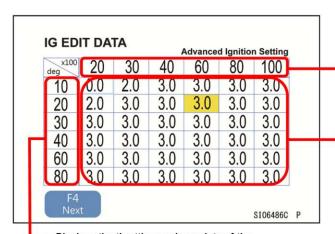
• Press the F2 button at the Map adjustment screen.



 The ignition timing adjustment screen (IG EDIT DATA) appears.







Displays the throttle opening points of the editing setting data.

The throttle opening mapping points can be changed. (Refer to "Map point setting".)

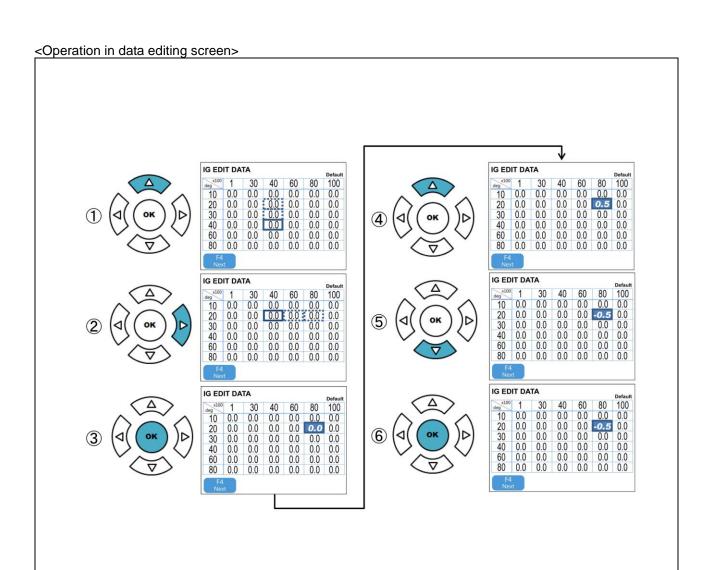
Displays the engine speed mapping points of the editing setting data.

The engine speed mapping points can be changed. (Refer to "Map point setting".)

Adjusts the ignition timing based on the engine speed and throttle opening.

The ignition timing at each point specified by the engine speed and throttle opening can be advanced/retarded (by degree). Press the F2 button to enter the EDIT DATA mode. Select the point to be changed and press the OK button. Change the value using Up and Down buttons and press the OK button to enter the changed value.

S106541C F



S106520C F

- ① Pressing the Up button moves the cursor upward.
- 2 Pressing the Right button moves the cursor rightward.
- ③ Pressing the OK button confirms the selection of the item on the cursor.
- ④ Pressing the Up button increases the value.
- ⑤ Pressing the Down button decreases the value.
- ⑥ Pressing the OK button confirms the selection of the current value.

NOTE

- \odot The adjustable range of the Controller is ± 12.0 (deg). However, if the input data exceeds the applicable setting range of ECU, the value within the latter range is applied. For example, if "+10.0" is selected while the setting range of ECU is +3 to -10, background of the map sheet changes to red and the value "+3" is applied.
- The applicable setting range of ECU is +3 to -10 (deg).
- The background colors of the map sheet (cell) are defined as follows.

Color	Definition
White	The value unchanged.
Yellow	The value changed from the original setting value.
Red	The value exceeding the setting range of ECU.

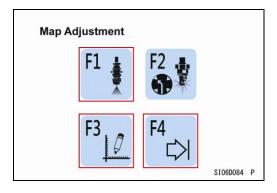
 After editing, pressing the F4 button saves the edited setting data and the display returns to the Map adjustment screen.

NOTE

 If the Cancel button is pressed, the currently displayed data is discarded and the display returns to the Map adjustment screen.

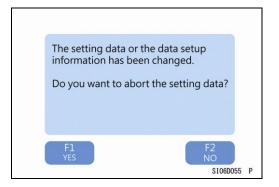
x100 deg	20	30	40	60	80	100
10	0.0	2.0	3.0	3.0	3.0	3.0
20	2.0	3.0	3.0	3.0	3.0	3.0
30	3.0	3.0	3.0	3.0	3.0	3.0
40	3.0	3.0	3.0	3.0	3.0	3.0
60	3.0	3.0	3.0	3.0	3.0	3.0
80	3.0	3.0	3.0	3.0	3.0	3.0

- To continue editing of the setting data, or to save the data, press the F1, F3 or F4 button.
 - F1: Adjusting the fuel injection amount of the same data setting (Refer to p. 56.)
 - F3: Changing the mapping points (Refer to p. 64.)
 - F4: Saving the data into SD memory card (Refer to p. 68.)



NOTE

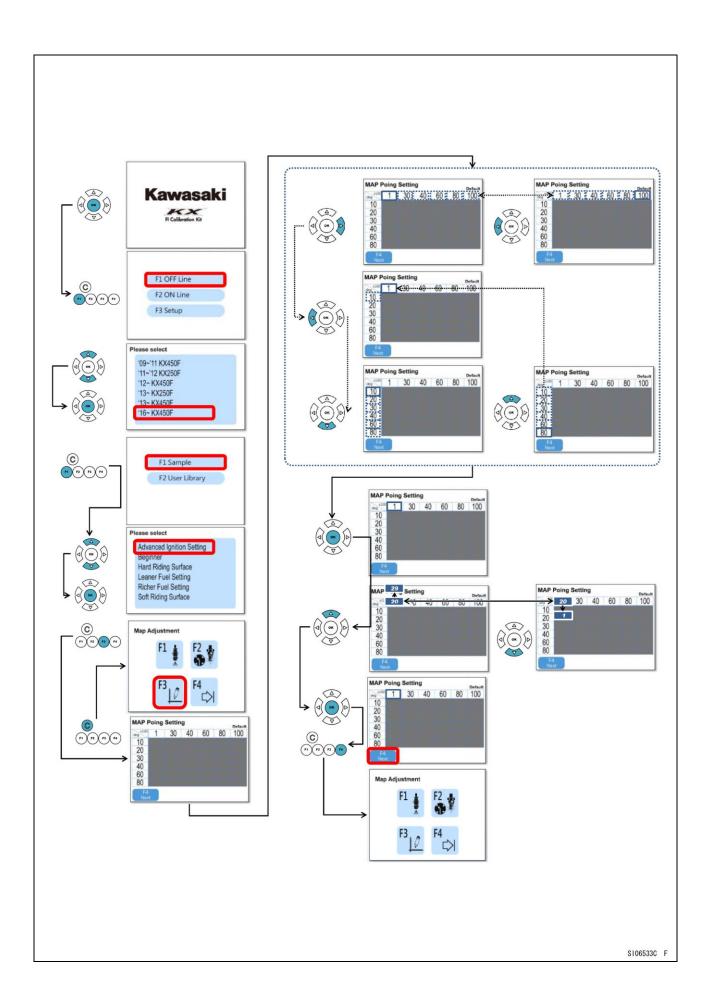
- If the Cancel button is pressed at Map adjustment screen, the message shown in the drawing appears.
- O Pressing the F1 button discards the current setting data and returns the display to the Setting selection screen.
- O Pressing the F2 button returns the display to the Map adjustment screen.



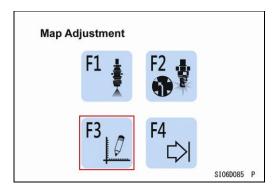
Mapping point setting

The mapping points specified by engine speed and throttle opening for adjustment of fuel injection amount and ignition timing can be changed.

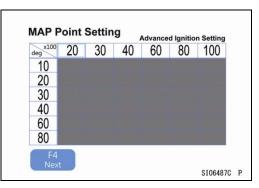
Perform the procedure following the steps of this text while referring to the flowchart shown below. The following description is to use a sample data. The procedure to use a user library data is almost the same.

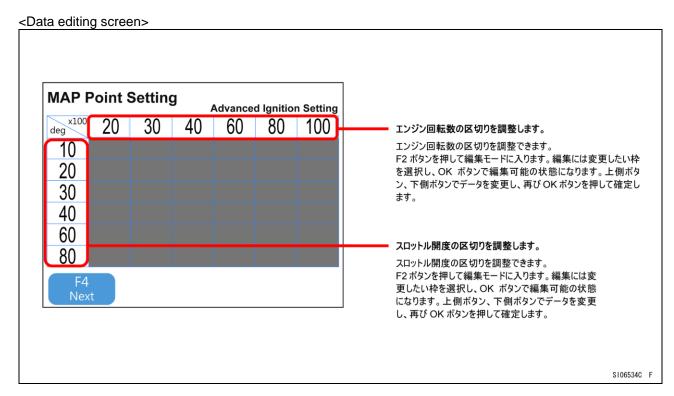


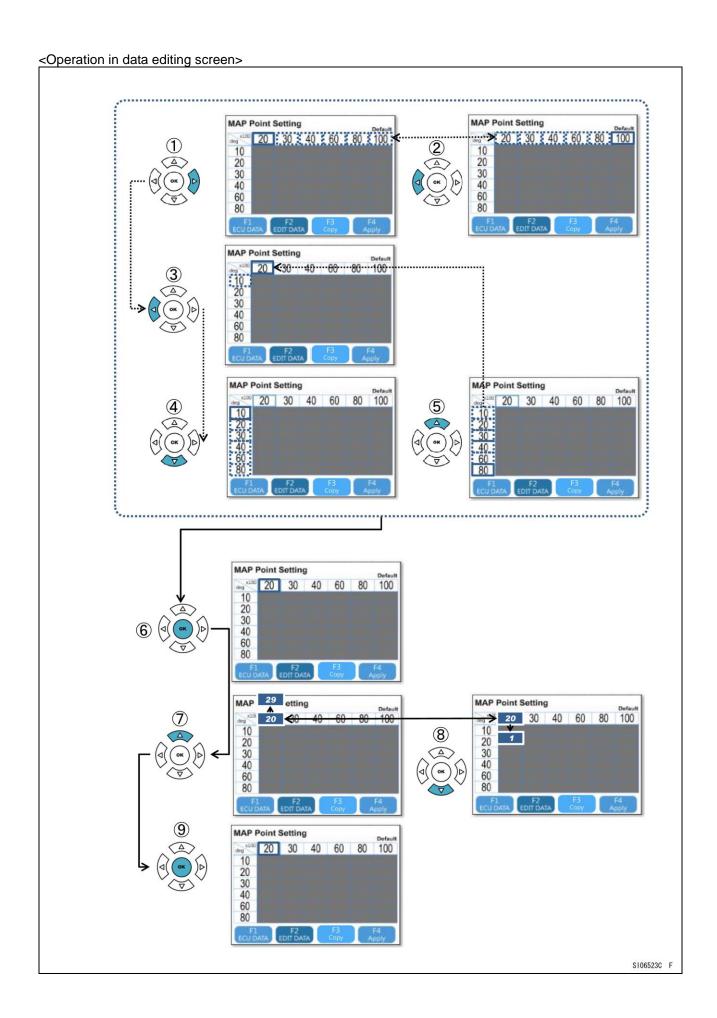
• Press the F3 button at the Map adjustment screen.



• The mapping point setting screen (MAP Point Setting) appears.





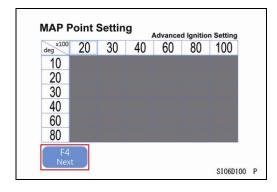


- 1) Pressing the Right button moves the cursor rightward.
- 2 Pressing the Left button moves the cursor leftward.
- ③ Pressing the left button cursor is moved to the vertical axis.
- ④ Pressing the Down button moves the cursor downward.
- ⑤ Pressing the Up button moves the cursor upward.
- ⑥ Pressing the OK button confirms the selection of the item on the cursor.
- Pressing the Up button increases the value.
- 8 Pressing the Down button decreases the value.
- Pressing the OK button confirms the selection of the current value.

- The setting of the fuel injection is based on two variables throttle opening and engine speed, whereas the setting of the carburetor is only based on the throttle opening. This enables finer setting for the fuel injection system.
- After editing, pressing the F4 button saves the edited setting data and the display returns to the Map adjustment screen.

NOTE

 If the Cancel button is pressed, the currently displayed data is discarded and the display returns to the Map adjustment screen.

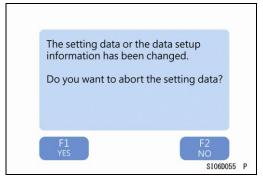


- To continue editing of the setting data, or to save the data, press the F1, F2 or F4 button.
 - F1: Adjusting the fuel injection amount of the same data setting (Refer to p. 56.)
 - F2: Adjusting the ignition timing of the same data setting (Refer to p. 60.)
 - F4: Saving the data into SD memory card (Refer to p. 68.)

Map Adjustment F1 F2 F3 F4 S1060088 P

NOTE

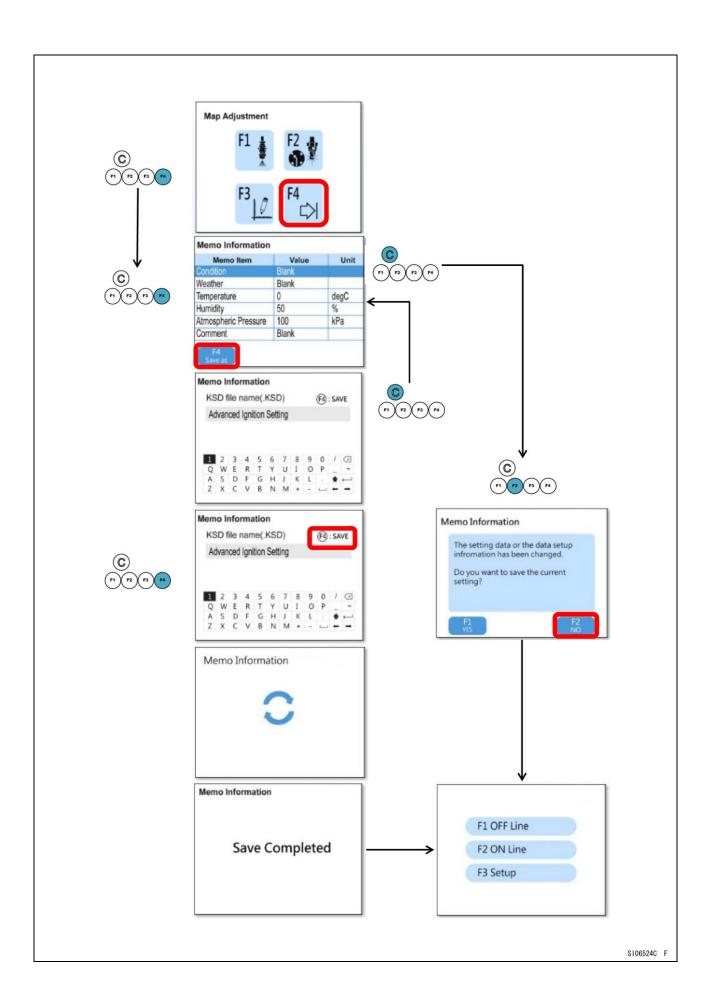
- If the Cancel button is pressed at Map adjustment screen, the message shown in the drawing appears.
- Pressing the F1 button discards the current setting data and returns the display to the Setting selection screen.
- O Pressing the F2 button returns the display to the Map adjustment screen.



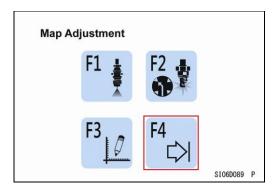
Saving the setting data

The setting data edited in the fuel injection amount or ignition timing adjustment screen can be saved in the Calibration Controller.

Perform the procedure following the steps of this text while referring to the flowchart shown below. The following description is to use a sample data. The procedure to use a user library data is almost the same.



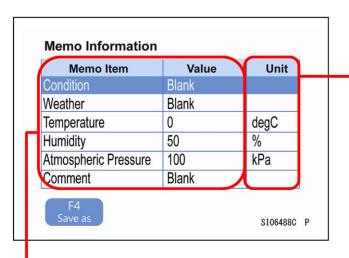
 After editing, press the F4 button at the Map adjustment screen.



• The Memo Information screen appears. You can write the surface condition, weather, etc. in the value column to save it together with the setting data.

Memo Item	Value	Unit
Condition	Blank	
Weather	Blank	
Temperature	0	degC
Humidity	50	%
Atmospheric Pressure	100	kPa
Comment	Blank	
F3 F4		

<Memo Information screen>



Unit: Displays the unit for each item.

Only for the temperature, displayed unit can be changed. For details, refer to "Setup of FI Calibration Controller".

Items can be recorded in the "Value" column.

Condition: Can be selected from Blank / Dry / Good / Wet / Muddy / Sand / Hard.

Weather: Can be selected from Blank / Sunny / Cloudy / Rain / Snow.

Temperature: Can be entered in figure.

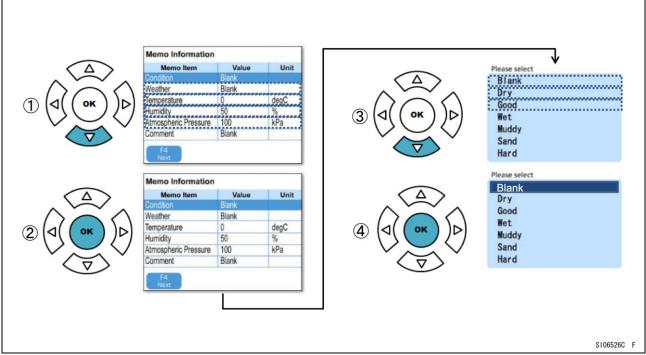
Humidity: Can be entered in figure.

Atmospheric Pressure: Can be entered in figure.

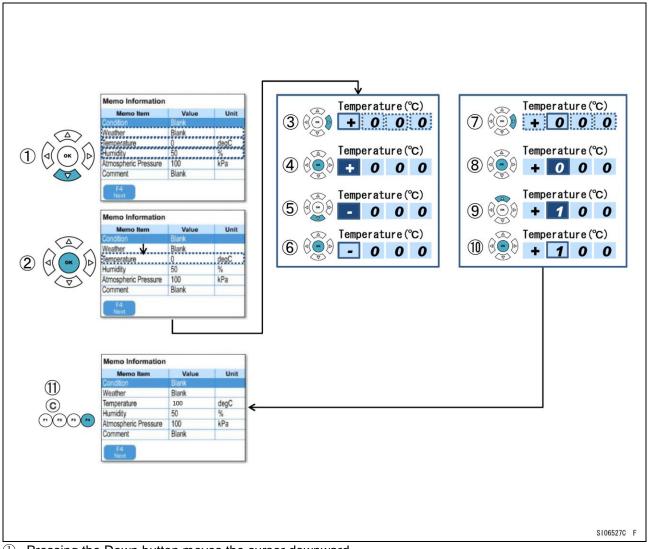
Comment: Can be entered freely.

S106543C F

<Operation in Memo Information screen>



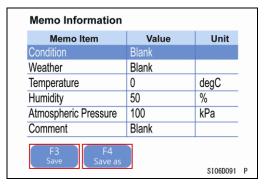
- ① Pressing the Down button moves the cursor downward.
- ② Pressing the OK button confirms the selection of the item on the cursor.
- ③ Pressing the Down button moves the cursor downward.
- ④ Pressing the OK button confirms the selection.



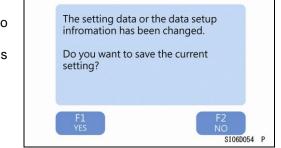
- ① Pressing the Down button moves the cursor downward.
- ② Pressing the OK button confirms the selection of the item on the cursor.
- ③ Pressing the Right button moves the cursor rightward.
- ④ Pressing the OK button confirms the selection of the item on the cursor.
- ⑤ Pressing the Down button changes the value to "-"(minus) value.
- 6 Pressing the OK button confirms the selection.
- Pressing the Right button moves the cursor rightward.
- Pressing the OK button confirms the selection of the item on the cursor.
- Pressing the Up button increases the value.
- ① Pressing the OK button confirms the selection.
- ① Pressing the F4 button saves the memo information and changes the display to File name edit screen.
- Pressing the F4 button stores the information and the screen changes to the File name edit screen.

- O For the setting data stored in the User Library, you can overwrite the data (Save) or save as another data (Save as).
- O Select either of the following.

F3 button: Save F4 button: Save as



- O If the Cancel button is pressed at Memo Information screen, the message shown in the drawing appears.
- O Pressing the F1 button returns the display to the Memo Information screen.
- O Pressing the F2 button discards the edited data and returns the display to the Mode selection screen.



(F4): SAVE

Memo Information

 Edit the file name. Pressing the F4 button saves the setting data.

<How to input>

Select a letter to be entered using the cursor keys and press the OK button.

<lcons>

⟨⊠	"Backspace" icon Deletes a letter which is one space before the cursor.
•	"Shift" icon Shifts the upper and lower cases of the alphabet.
	"Space" icon Inputs one space.

Z X C V B N M

A S D F G H J

Memo Information

2 3 4 5

W E R

KSD file name(.KSD)

Advanced Ignition Setting

U

K L

0

NOTE

- The following symbols cannot be used in the file name. "/" "." "<" ">" " ""
- The file name should be an easily-understandable one.
 For example, the following file name includes date, purpose, and creator of the file

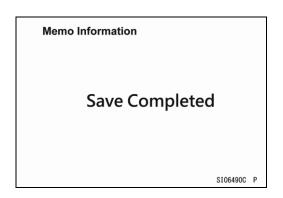
Ex) "150505-RainTest-Kawasaki.KSD": This file was created on May 5, 2015, for rain test, by Mr. Kawasaki.

You can identify the similar files by adding a letter "b", "c" or the like at the end of the date.

- Ex) "150505b-RainTest-Kawasaki.KSD"
- The file has been saved if the message shown in the drawing appears.

NOTE

○ The file is saved in the "User Library".



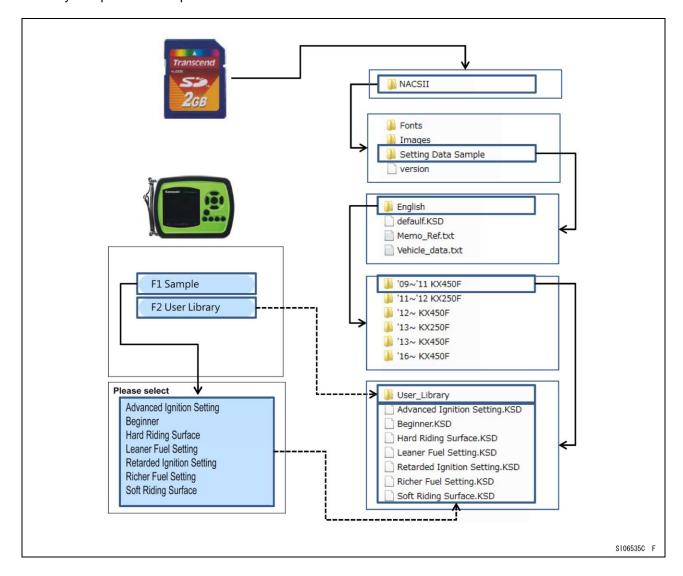
Data management

The operation program of the FI Calibration Kit is stored in the SD memory card. The same data is also stored in the attached CD-ROM as a back-up.

A personal computer is necessary to edit the file names of the setting data or to restore the operation program from the back-up files. For the required specifications of a personal computer, refer to "Specifications" on page 15.

Outline of storage locations of the setting data files

The outline of the storage locations of the setting data files in the FI Calibration Controller (that is, in the SD memory card) is shown in the following diagram. Read the following precautions carefully and perform the operations.



NOTE

O You may change only the file names in the "User_Library" folder. If any other files name is changed, the FI Calibration Controller may not operate properly.

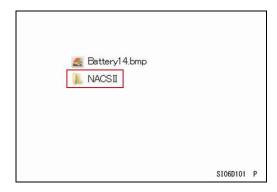
Storage location of the setting data

The setting data edited and stored by the FI Calibration Controller are stored in the "User_Library" folder in the SD memory card. You may change the file names of these setting data using a personal computer.

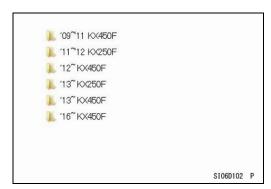
 Open the "(Model name)" folder of your motorcycle in the "NACSII" folder in the SD memory card.

NOTE

○ To access the "(Model name)" folder: "NACSII" \rightarrow "Setting Data Sample" \rightarrow "English" \rightarrow "(Model name)".



• Open your "(Model name)" folder.



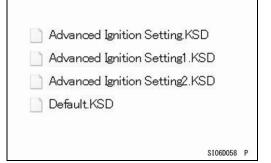
 In the "(Model name)" folder, the recommended setting data are stored, and also the setting data edited and stored by the FI Calibration Controller are stored in "User_Library" folder under the "(Model name)" folder.

NOTE

 You may change only the file names in the "User_Library" folder. Never change any other file name. Doing so may cause malfunction to the FI Calibration Controller.

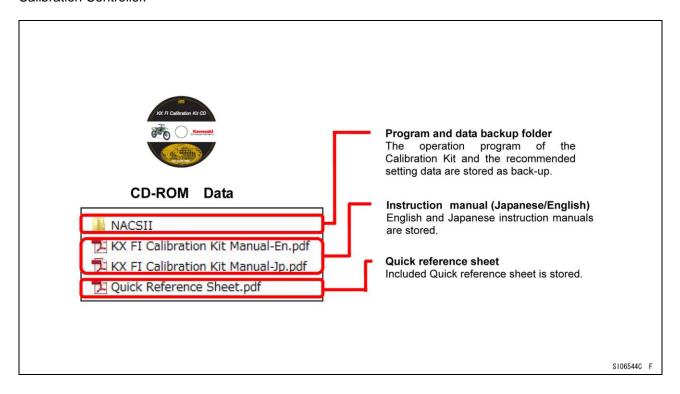


- You may change only the file names in the "User_Library" folder.
- Only one-byte alphanumerical characters can be used. There are some symbols which cannot be used. For details, refer to the description about how to edit the file name in the "Saving the setting data" on page 46.



Back-up data

Various data stored in the SD memory card such as operations program and recommended setting data are also stored in the attached CD-ROM as back-up. If necessary, copy the required data to the SD memory card for use in the FI Calibration Controller.



 Copy the required data in the "NACSII" folder in the CD-ROM to the SD memory card.

NOTE

 For the locations of the files in the SD memory card and CD-ROM, refer to "Outline of storage locations of setting data files" on page 74.



Quick Reference Sheet

*Please refer to the Kawasaki's "KX FI Calibration Kit Instruction Manual" for the complete calibration information.

The KX FI Calibration Kit allows you to adjust the rate of fuel injection and ignition timing of the engine if you connect it to the motorcycle's ECU (Electronic Control Unit).

By repeating changing the settings you can set the optimum engine control parameters according to the riding course, rider's technique and skills, weather conditions, and other factors.

Standard Kit Parts



- 1. FI Calibration Controller
- 2. SD Memory Card
- 3. Carrying Case
- 4. Controller Transfer Cable
- 5. Vehicle Transfer Cable
- 6. AC Adapter

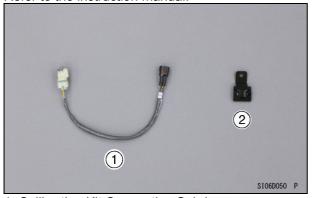
Other than EU [A]

EU [B]

- 7. CD-ROM
 - ·Instruction Manual (In Japanese/English)
 - ·Quick Reference Sheet (In Japanese/English)
 - ·SD Memory Card Backup Data
- 8. Quick Reference Sheet (This Manual)

Optional Parts

Refer to the instruction manual.



- 1. Calibration Kit Connecting Sub-harness
- 2. Bracket, Diagnostic Connector

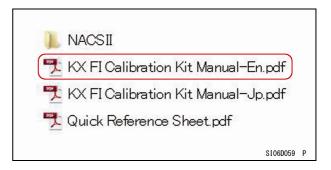
PC

Item	Explanation
os	Windows 8.1/8/7/Vista
Others	CD-ROM Drive: Required for viewing the instruction manual and quick reference sheet. Required for move the backup data to the SD memory card. SD Memory Card: Required for move the backup data to the SD memory card. Adobe Reader: required for viewing the PDF file (Instruction Manual, Quick Reference Sheet)

Flow of Service Preparation

Read the instruction manual before you use a KX FI calibration kit.

For details, read the "Instruction Manual" contained on the CD-ROM disc (English language version: "KX FI Calibration Kit Manual-En.pdf").



The following four operations are the typical operations. For details, refer to the applicable pages in the instruction manual.

- 1. Rewriting the setting data of ECU using the prepared setting data (Refer to "ON Line mode".)
 - Rewriting the fuel injection amount and/or ignition timing setting
- 2. Preparing the setting data (Refer to "OFF Line mode".)
 - ·Editing the fuel injection amount and/or ignition timing setting and storing as setting data file
- 3. Monitoring the engine status (Refer to "ON Line mode".)
- 4. Resetting ECU to the factory setting (Refer to "ON Line mode".)



KAWASAKI HEAVY INDUSTRIES,LTD.
Motorcycle & Engine Company

Part No. 99958-0075